THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXXVII. NEW YORK, SATURDAY, SEPTEMBER 22, 1900. NO. 12.

ORIGINAL ARTICLES.

STUDIES IN SURGICAL TECHNIC, WITH A REPORT ON OPERATIVE SURGERY AT THE CITY HOSPITAL FOR 1898 AND 1899.

BY GEORGE EMERSON BREWER, M.D.,

OF NEW YORK;

ATTENDING SURGEON TO THE CITY HOSPITAL; JUNIOR SURGEON TO ROOSEVELT HOSPITAL; ASSISTANT DEMONSTRATOR OF ANATOMY IN THE COLLEGE OF PHYSICIANS AND SURGEONS.

IN April, 1896, the writer presented to the Harvard Medical Society of this city a paper entitled "Operative Surgery at the City Hospital, with a Preliminary Report on the Study of Wound Infection." This communication consisted of a record of the operative work occurring in my first service of six months in that institution, together with a report of a more or less systematic series of experiments undertaken during that period, with a view to improving the surgical technic of the hospital.

That the surgical technic needed improvement will be evidenced by the fact mentioned at the time, that during the first month of this service, of 43 cases operated on for various diseases and injuries, not one clean case escaped infection, and in only seven of the patients already infected did the operative procedure result in wounds which healed without suppuration. As these results were probably the worst ever published, and certainly far worse than any previously observed by the writer, a rigid investigation was at once undertaken to account for, and if possible to correct this unfortunate and mortifying state of affairs.

It should be stated, however, that at this time the hospital operating-room was small, badly lighted, badly ventilated, and wholly unprovided with modern appliances; that there was no apparatus for the proper sterilization of ligature and suture material, and no modern autoclaves for sterilizing dressings, gowns, etc., under live steam. In addition to these disadvantages, our house staff by the system of rotation then in vogue, changed every six weeks, the house surgeon only having had a previous surgical experience of six weeks as junior.

After a brief period of investigation, a large number of errors in technic were discovered, among the most important of which may be mentioned faulty methods of hand disinfection, faulty method of disinfecting the wound area of the patient, rough handling of the divided tissues during operation, frequent contamination of hands, sponges, towels and dressings, through lack of training of the operator and assistants, contamination of the wound by falling dandruff during operation, and by insufficient protection by dressings during the period of convalescence.

These and many other minor errors were gradually corrected during the remaining five months of the service, with only a fair improvement in result, until at last the method of operating without any assistance was undertaken in a few selected cases. The result in these cases was perfect; in each instance union taking place by first intention. Then followed a number of cases in which one assistant was admitted; later two, and finally three. In addition to this a censor was appointed, whose duty it was to watch every step of the operation and to instantly condemn any hand, instrument, sponge, suture or dressing which had become accidentally contaminated. In this way a large number of errors were avoided, and the results began to show substantial improvement. The year closed with a record of 39 per cent. of clean cases having become infected during operation.

In reviewing the results at the close of the paper, the writer made the following statement: "As a large proportion of the patients admitted to our wards are in a wretched condition of malnutrition from syphilis, tuberculosis, chronic alcoholism and insufficient food, it is not surprising that our results should be inferior to those obtained in institutions where the more fortunate classes are treated; for it is a well-known and generally accepted fact that a vigorous and healthy organism can often overcome, without local or general reaction, an amount of infection which would certainly give rise to suppuration and marked systemic disturbance in one whose vital forces were greatly reduced by dissipation or disease. While the writer believes that this fact may account for a certain amount of suppuration following operations on clean cases, it by no means can account for the large number of infections which occurred during this period. I may say, in conclusion, that it is my purpose to continue these experiments, and if necessary inaugurate a series of bacteriological investigations with a view to locating and removing any other sources of wound infection which up to the present may have escaped detection; after which it may be possible to gather some data, which may help to solve the question of how much (if any) unavoidable suppuration may be expected in this class of cases."

As a result of our changed technic the work of our second year showed at once a marked improvement in results. During this period the Department of Charities, as a result of an earnest appeal from our Medical Board, furnished the Hospital with two new perfectly equipped operating-rooms with all modern appliances. A

complete sterilizing room was added with 3 Sprague-Kny autoclaves, instrument-boilers, water-sterilizers, and in fact everything necessary to equip a modern operating-room. An operating-room nurse, trained in the Johns Hopkins Hospital, was secured and placed in charge. At the same time, to test our new apparatus, and to detect further errors in our technic, a thorough bacteriological investigation of our material and methods was undertaken and thoroughly carried out by Dr. Phillip Hanson Hiss of the Pathological Laboratory of the College of Physicians and Surgeons.

A complete record of these investigations, together with the changes in our technic which resulted from them, was presented to the surgical section of the New York Academy of Medicine in a paper entitled "Operative Surgery at the City Hospital with a Completed Report on the Study of Wound Infection," and published in the *Medical Record* of March 13, 1897.

As a result of our bacteriological investigation it was conclusively demonstrated that our material, such as silk, catgut, sponges, dressings, towels, gowns, caps, etc., was absolutely sterile; that our instruments were clean; and that our methods were free from any glaring errors in technic. The three most probable sources of infection still to be remedied were, the skin of the patient, the hands of the operator and his assistants, and the air of the operating-room. The second was completely removed by the adoption of rubber gloves; the third was minimized by the plan of covering all instrument trays and hand solutions with sterilized muslin tents supported by wire frames. Many methods were employed to remove the first, but without any proving bacteriologically satisfactory. Toward the close of the year, the following rules were printed and posted in the operating-room and in each surgical ward of the hospital. These will serve to give a general idea of our methods.

Preparation of Patient.—When possible, a hot bath shall be given the day before the operation, followed by shaving and scrubbing the part for two minutes; soap poultice over night. The following morning, rescrubbing for ten minutes, after which a wet bichloride gauze dressing shall be applied (1-1000); this to be done only by the head-nurse in the ward, after thorough sterilization of the hands.

On the operating table, the dressings shall be removed and the part washed by the house surgeon, for one minute, with soap and sterile water, a pledget of sterile cotton being used instead of a brush; then douched with alcohol, ether and sterile water. Sterile dry towels to be used around wound area. The operator, his assistants, and the operating-room nurse shall wear freshly sterilized gowns. Gauze caps shall be worn in every aseptic case by those in immediate contact with the wound area.

The hands of the operator, his assistants, and the operating-room nurse shall be prepared in the following manner: After cleansing the nails with soap, hot water, and a sterilized nail-cleaner, the hands and arms must be brushed for five minutes with sterilized soap and hot water, then brushed for one minute with a 3 per cent. solution of carbolic acid in alcohol, and rinsed in sterile water. Sterilized rubber gloves shall be worn by all participating in the operation. The ligature and suture material shall be removed from the bottles and handled only by the senior assistant surgeon; dressings and sponges only by the operating-room nurse.

The head nurse of the ward shall superintend the moving of the patient, the adjustment of the blankets and other unsterilized coverings, assist the etherizer, and be prepared when necessary to assist or take the place of the operating-room nurse.

No departure from these rules will be allowed without the permission of the house surgeon.

As a result of these changes, our records during the second year show substantial improvement, as the infection of clean cases during this period was reduced to 9 per cent. The work of our third year was largely devoted to overcoming the results of air infection, which from our bacteriological experiments we felt was a factor at least in some of the infections which had occurred during the previous year.

The favorable effect of glutol or formalin-gelatine powder had been noted in a series of badly infected wounds which had been treated by this agent, and it occurred to the writer that some other form of formaldehyde might be employed as an antiseptic agent in wounds which had been exposed to the air during long operations.

To verify certain statements in regard to the antiseptic properties of formaldehyde gas which had been published in France the writer made the following experiment:

A room was selected in the hospital, the air of which was known to be badly infected. The capacity of the room was about 2800 cubic feet. In this were placed a large number of test-tubes containing gauze soaked with pus from suppurating wounds, also tubes containing spore threads contaminated with *bacillus subtilis* obtained at the pathological laboratory of the College of Physicians and Surgeons. These were placed at a number of levels and more or less completely imbedded in masses of gauze, towels, sheetings, etc. The room was closed as tightly as possible and formaldehyde gas passed through the key-hole in the door from a Trillot generator for one hour. Three hours later the room was opened and the various pieces of pus-soaked gauze and the spore threads transferred to bouillon-tubes; also, scrapings from the floor, sidewalls, window-sills and board-shelves, and the tubes sent to Dr. Hiss for incubation. No growths were obtained in any of the tubes thus inoculated, conclusively demonstrating the powerful antiseptic properties of formaldehyde gas.

The next experiments were in the sterilization of acutely infected wounds with solutions of formalin. This was used in the strength of 1-300

to 1-50 of water, as an irrigating fluid, and also for soaking gauze which was used as a wound packing. Experiments were also made with formalin as an agent for hand and skin disinfection, and finally the plan adopted of wiping all operating wounds with gauze sponges wet with this agent just before suturing, and applying a strip of wet formalin-gauze over the sutured wounds before applying the ordinary dressings.

All of these experiments were reported in detail in a paper read by the writer before the Surgical Section of the Suffolk County Medical Society in Boston, in March, 1898, entitled "Some Observations upon Modern Surgical Technic from an Analysis of 421 Operative Cases at the City Hospital."

As a result of these improvements in our technic, the writer was able to report, at the close of his third year, infection in only 7 per cent. of his clean operative cases.

During the years 1898 and 1899 the writer was on duty 13 months. The total number of operations occurring in his service was 358, which may be classified as follows: Operations on the head, 27; on neck, 22; on thorax and spine, 22; on abdomen and pelvis, 60; on upper extremity, 18; on lower extremity, 117; ischio-rectal region, 52; on hernias, 40.

Of the 27 operations in the head, there were 10 osteoplastic resections of the skull for intracranial disease, of which seven recovered and three died. Four for necrosis of lower jaw, all recovered; one excision of upper jaw, recovered; one excision lower jaw, improved; two epitheliomata of lower lip, one recovered, one improved; two excisions of tongue and floor of mouth, one improved and one died; one excision of tonsil, floor of mouth and part of lower jaw, died; one Hartley-Krause operation for removal of the Gasserian ganglion, recovered. Two fractures of lower jaw, wired; one epithelioma of face and one of ear—all recovered.

As the 11 operations upon the brain have already been reported by the writer, with a number of others, in a paper entitled, "Some Observations on Modern Cerebral Surgery," none of the cases of this series will be mentioned in detail.

Of the 22 operations on the neck, there were 3 for abscess, 12 for tuberculous glands, 1 for hematoma, 2 for tumor, 1 sarcoma, and 1 cyst of thyroid, 2 exploratory incisions, 1 for inoperable sarcoma, and 1 for supposed carotid aneurism; 1 ligature of common carotid and 1 tracheotomy for carcinoma. Of these 17 recovered, 2 were improved, and 3 died. Two of the three deaths occurred in patients who were practically moribund at the time of the operation; one of these was tracheotomy in the last stages of carcinoma of the throat, and the other was a ligature of the carotid artery to check hemorrhage in a large ulcerating sarcoma of the neck.

Only one operation of this series deserves special mention and that was in a case referred to the surgical service by Dr. C. C. Ransom, Visiting Physician to the Hospital, with a diagnosis of aneurism of the common carotid artery. The case presented nearly all of the characteristic symptoms and signs of the disease. There was a slight bulging with visible pulsation at the root of the neck on the right side under the lower portion of the sternomastoid muscle. Upon examination a small deep-seated tumor could be felt with distinct expansile pulsation when the thumb was placed at the outer border of the sternomastoid muscle just above the clavicle, and the first finger pressed deeply in the suprasternal notch, the two being then separated about two inches. The patient complained of slight pain with a disagreeable sense of throbbing which often prevented sleep. Under ether anesthesia an incision was made along the inner border of the sternomastoid muscle, and the artery exposed. No aneurism was found, but there was a peculiar and quite unusual anomaly present. The right subclavian artery arose from the junction of the ascending and transverse portions of the arch of the aorta, and passed upward and outward in the direction of the innominate; about one inch to the left of this branch was a large trunk given off from the middle of the arch, which was found to give origin to the right common carotid and the left common carotid and subclavian arteries. The right common carotid described a double curve similar to a letter S, obliquely placed, the first and lower curve with its convexity pointing inward, occupied a position in the suprasternal notch; the second and upper curve, with its convexity pointing outward, was placed above the clavicle, partly behind and partly to the outer side of the sternomastoid muscle. From this point the artery pursued a direct course upward to its bifurcation. The patient recovered from the exploration.

There were 22 operations on the thorax and spine; one case of carcinoma of both breasts, double Halsted operation; two laminectomies—one for fracture and one for Potts' paralysis; two resections of clavicle for deformity following fracture; three cases of mastitis; one axillary abscess; one exploratory operation for caries of spine; one Van Hook's operation for sacro-iliac disease; nine resections or ribs, of which 3 were for empyema, 2 for abscess of lung, 1 for subphrenic abscess, one Estlander's operation and two for exploration; one excision of a large carbuncle of back. Of these 15 recovered, one was improved, 2 not improved, and 4 died; the 4 deaths being the 2 laminectomies, 1 following operation for empyema, and 1 for abscess and gangrene of lung.

Of the 60 operations on the abdomen there were 48 laparotomies. Of these there were 9 appendectomies, 4 cholecystostomies, 1 cholecystectomy for carcinoma, 2 intestinal anastomoses, 2 gastro-enterostomies, 1 gastrostomy, 4 colostomies, 7 for ventral hernia, 1 for tuberculous peritonitis, 2 hysterectomies, 2 salpingo-oophorectomies, 3 for intra-abdominal abscess and 1 for a ruptured ectopic gestation, 1 nephrectomy, 2 nephrotomies, 1 nephrorraphy, 1 suprapubic

cystotomy, 1 large retroperitoneal abscess, 4 for cellulitis and 2 uterine cases.

Of the 48 laparotomies there were no deaths from operation, and in only 2 did death occur during the period of observation, and these were both cases of advanced carcinoma. Death followed operation in two cases of extensive and neglected pelvic suppuration opened externally, and in one case of exploratory nephrotomy where multiple abscesses of the kidney were found.

As a number of interesting cases of this series has already been reported in the *Annals of Surgery*, and as a report of the gall-bladder operations is reserved for another occasion, the writer will mention but one case in detail.

This patient was referred to the writer by Dr. Joseph Collins, attending physician to the hospital. A male, aged thirty-two years, complained of pain in the left side of the chest and abdomen, cough, shortness of breath and fever; duration three months. Upon examination there was seen an enlargement of the left half of the abdomen, extending from the crest of the ilium, upward behind the ribs, and causing a marked bulging of the lower left side of the thorax. This enlargement was found on palpation to be due to the presence of an enormous tumor, occupying the entire left half of the abdomen which was smooth, dense and moderately elastic. An aspirating needle withdrew moderately thin pus. Under chloroform anesthesia an incision was made in the left flank parallel with the lower rib, and the tissues divided through the lumbar aponeurosis. Just beneath this structure was found a thick fibrous mass suggesting a cyst wall. This was incised and about a gallon of pus was evacuated. The wound was thoroughly drained, dressings applied, and the patient placed in bed. All symptoms were at once relieved, and the wound was regularly irrigated and dressed for two or three weeks. As the discharge persisted and the patient's condition did not improve after the first marked relief, he was again anesthetized and the kidney and cyst wall removed through a large König's incision. The vessels and ureter were ligated with chromicized catgut, the wound closed by layer sutures and a small gauze drain introduced. The patient made an uninterrupted recovery and has since been well. An examination of the specimen showed it to be an enormous suppurating cyst developing from the cortex of the upper pole of the kidney and not communicating with the pelvis.

Of the 18 operations on the upper extremity, there were 2 excisions of the elbow, 1 excision of a metacarpal bone, 4 amputations of the arm, 1 at the shoulder, 1 suppurating arthritis of the elbow, 2 cases of cellulitis, 1 lengthening of tendon, 1 neurosis, 2 wiring of ununited fractures, 1 ankylosis of elbow, 1 old dislocation of the shoulder, and 1 chronic relapsing dislocation of the shoulder. There were no deaths in the series; 14 were discharged cured, 2 improved, and 2 not improved.

Of the 117 operations at the lower extremity, there were 28 amputations, of which 3 were at the hip, 9 of the thigh, 4 of the leg, and 12 of the foot or toes; 5 excisions, 2 of the knee and 3 of the ankle; 5 arthrotomies of the knee, 4 for suppurative synovitis and 1 for the removal of a loose cartilage; 1 arthrotomy of the hip; 1 suture of a ruptured tendon of the quadriceps extensor; 7 cases of hallux valgus; 1 exploratory operation for tumor of thigh; 1 excision of a sarcoma of the ilium; 1 tumor of the buttock; 1 wiring of an ununited fracture of the femur; 1 flat foot; 1 case of multiple typhoid osteo-myelitis; 1 tenotomy; 8 for neurosis; 8 Tiersch skin grafts; 17 cases of cellulitis and 29 cases of varicose veins of the leg. There were 6 deaths in the series of 117 cases; 1 occuring 6 weeks after amputation of the hip, suddenly at night without known cause, as the wound was healing kindly; 1 following amputation of the thigh; 1 of the leg and two of the foot. In the sixth case death from uremia followed a simple operation on varicose veins; 11 of the series were unimproved as a result of the operative intervention; 5 were improved and the remaining 95 were discharged well. Of the three cases of hip amputation two recovered, and have been reported in the *Annals of Surgery*. Fowler's operation was employed in the 7 cases of hallux valgus—all with satisfactory result. In the case of multiple osteomyelitis following typhoid fever, there were 2 foci in each tibia and one in the femur opened; 4 healed promptly and one after prolonged drainage. In the case of sarcoma of the ilium, the entire ala was removed down to the ring of the acetabulum. This extensive wound healed very slowly, but the patient was finally transferred to another service on account of a lung tuberculosis and died about six months later without a recurrence.

The arthrotomies of the knee furnish an interesting series. The four cases of suppurating synovitis were all opened freely, washed out and drained; all recovered with a fair degree of motion. The one for the removal of a movable cartilage became infected and later submitted to an amputation of the thigh. This case will be referred to later in our report on asepsis.

Of the 52 operations on the ischiorectal region there were 19 for hemorrhoids, of which 3 were treated by the Whitehead method, 3 by ligation and excision, and 13 by clamp and cautery. There were 20 cases of ischiorectal suppuration, with 8 fistulæ leading into the bowel; 1 fissure ani; 1 inguinal adenitis; 4 ulcers of rectum; 1 prolapse of rectum; 1 hematoma of scrotum; 1 varicocele; 2 hydroceles; 1 tuberculous testes; 1 suppurating epididymitis; 1 external urethrotomy for extravasation; 1 carcinoma of vulva, and 1 carcinoma of rectum (Kraske's); the last case resulting fatally, being the only death of the series.

Of the 40 hernias operated upon, 37 were inguinal and 3 femoral; of the inguinal, 27 were operated upon by the Bassini method; 7 by the Halsted and 3 by the Phelps. Two of the fem-

oral were for radical cure and 1 was for the relief of strangulation. All of these patients recovered, and will later be reported in a series of 100 by the writer.

As there had been during the last four months of 1897 no case of infection in a clean operative wound, although 43 such cases had been operated on, it was hoped that our results during 1898 would be such as to enable us to present a report of which we might be justly proud. We had excluded all sources of infection through ligature and suture material, instruments, dressings, towels, sponges, and irrigating fluids. We had avoided absolutely contact of bare fingers with wound area or anything which could come in contact with it. We had guarded against falling dandruff or dust from our heads, we had protected our instrument trays, hand solutions, water pitchers and irrigators; we had employed the most systematic and thorough methods of sterilizing the wound area; we guarded every step of our operation by an ever vigilant censor, and, at last, to overcome any possible air infection, just before closing each clean wound, we carefully wiped it with a sponge wet in 1-50 formalin, and after suture the wound was still further protected with a strip of gauze wet in the same solution. In addition to this our entire staff was enthusiastic. Each one watched the others for the slightest error in technic and the fullest criticism was invited and welcomed. A stitch-abscess was immediately made the subject of the fullest inquiry, and anything more serious resulted in our suspending all operative work until a satisfactory explanation could be obtained.

During the first month of this year pus appeared in only one clean operative wound, and that is not recorded as an error of operating-room technic, as it was expected and provided for. The patient was an exceedingly old and feeble woman with an advanced epithelioma of the leg. Her condition would not permit of her being prepared in the usual thorough manner and on the operating-table everything was sacrificed for speed of operation. The thigh was amputated at the junction of the upper and middle thirds; the vessels secured, only three or four sutures introduced, the rest of the wound being generously packed. She made a rapid and satisfactory recovery, although pus was present from the first dressing in the drain opening, which nevertheless closed rapidly. Shortly after this a wound made by my house surgeon for the removal of a varicosed vein suppurated; probable exciting cause, excessive bruising and tearing of the subcutaneous tissues. The following month a stitch infection occurred in an internal appendix case operated upon by the writer, without known cause. During August of this year five cases became infected; a veritable storm of infection. It was thought that this might be due to contamination of the wound by our gloves by perspiration, as the weather was excessively hot, or through contact with flies, which was occasionally noticed. Two others occurred during the last three months of the year, making 9 in 105 clean cases, or 8½ per cent.; 1½ per cent. higher than in 1897.

Although the writer had fully intended to make his usual report this year, the results were so disappointing, and after four years of conscientious and almost unceasing effort, so utterly discouraging, that the report was never written. By a careful analysis of the infected cases, it was seen that 8 of the 9 cases occurred in hernia or varicose-vein wounds, both areas difficult to disinfect, while in the former the tendency toward the formation of dead spaces and accumulation of blood and wound fluids renders infections very probable; while in the latter, the hypertrophy of the skin not infrequently retards repair.

These facts led to a slight change in our technic in these cases to insure better drainage. This consisted in suturing the upper and lower thirds of these wounds only, leaving in the middle third a gauze drain which extended upward and downward under the sutures and projected in the middle well above the wound edges. One or two provisional sutures were then introduced in the drained middle third. At the end of forty-eight hours the wound was dressed, the gauze drain removed and the edges united by the provisional sutures.

The results were strikingly satisfactory; as our records for 1899 show, that out of 96 clean operations, only 3 became infected, and in two of these our usual technic was not carried out. The first case was a serious one and I blame myself for the result. The patient was a healthy man, fifty years of age, who had complained of symptoms of a movable cartilage in the right knee joint. He readily consented to an operation for its removal and was prepared in the usual manner. Recognizing the seriousness of an infection of the knee-joint, as well as the susceptibility of its synovial membrane to infection, the utmost care had been exercised to avoid any error in technic. After the patient was anesthetized and on the table, and all of the assistants were ready, in drawing my thin rubber gloves on my hands one was badly torn and rendered entirely useless. I asked for another pair, but was told that none were available. At first I determined not to proceed with the operation, but later changed my mind, as all of the assistants were properly gloved. I again thoroughly disinfected my hands by the Fürbringer method, and proceeded with the arthrotomy. No error in technic was observed; the joint was quickly closed, a large aseptic dressing applied and the leg encased in a plastic cast. All went well for 36 hours, when a suspicious rise in temperature occurred, which was soon followed by other symptoms of infection. The joint was freely opened and drained, but in spite of all our efforts a rapidly developing sepsis occurred requiring amputation of the thigh.

The second infection occurred in a hernia wound which was tightly united without drain-

age by my house surgeon, who feeling sure of his technic asked permission to try one case by that method. The third was simply a small stitch abscess which occurred in a varicose-vein case operated upon by another house surgeon, in which the record does not mention whether it was drained or not.

To briefly sum up the results of our five years of work at the City Hospital: First year, number of operations, 147; deaths, 8; mortality percentage, 5.4 per cent.; infection occurring in clean cases, 39 per cent.

Second year, number of operations, 109; death-rate, 8.2 per cent.; percentage of infection in clean cases, 9 per cent.

Third year, number of operations, 165; death-rate, 9 per cent.; percentage of infection in clean cases, 7 per cent.

Fourth year, number of operations, 191; death-rate, 6.2 per cent.; percentage of infection in clean cases, 8.5 per cent.

Fifth year, number of operations, 168; death-rate, 7.1 per cent.; percentage of infection in clean cases, 3.2 per cent.

From these observations, the writer feels justified in stating, in answer to the inquiry made at the close of his first report in 1896, as to how much unavoidable suppuration must be expected in this class of patients, that, if our technic is perfect, none should be expected, and while he is willing to admit that the resistance of these individuals is doubtless greatly reduced, and that visible infections will occur from a very much smaller amount of infective material than in healthy organisms, still by a perfect, though perhaps an exaggerated system of technic, our results at the City Hospital may be made as perfect as those at any other institutions.

68 West 46th Street.

TOXICITY VERSUS SEPTICITY IN THE INFECTIOUS PATHOGENIC BACTERIA.

By EUGENE WASDIN, M.D.,
OF BUFFALO, N. Y.;
SURGEON UNITED STATES MARINE HOSPITAL SERVICE.

IT is now a well-established fact in bacteriology that the pathogenic organisms are hurtful to the animal economy through the action of certain toxins, the product of their physiologic development, which are absorbed from the seat of their colonization and affect the system through the circulation; that these toxins are also elaborated during the growth of the bacteria upon artificial media and may be extracted therefrom in a comparatively pure state; and that, when introduced into the blood of animals susceptible to their influence, they produce the symptoms which characterize the infections with these bacteria. Also, that the infecting bacteria may prove hurtful through their presence in the blood having invaded the circulation from the primary colony.

The former conditions are the "intoxications" and to the latter has been applied the term "septicemiæ," although this does not convey the meaning that the injury results from their active presence in the blood, for it is still from their elaborated toxins that the symptoms of disease are produced.

The classic intoxications are those of diphtheria, of tetanus and cholera Asiatica, in which infections the localized colony of the organism seems to play no further part than the production of toxin, which being absorbed produces the symptoms, the intoxication. In diphtheria the colony rests always at its primary seat, extending only upon the contiguous membrane; there is no invasion of the other tissues of the body, no septicemia; the organisms occasionally found in the adjacent tissues being the result of phagocytic carriage from the mucous surface involved. In this disease the presence of the colony excites a most wonderful local reaction, the leucocytes quickly forming a barrier of protection in the so-called "false membrane."

In tetanus and in cholera there is no such local reactionary collections of leucocytes. In the former the primary symptoms are developed in the nervous centers remote from the seat of infection; while in the latter, although the symptoms may be primarily intestinal, there is no general cellular formation, such as is found in diphtheria, nor does the presence of the bacillus in the intestine seem to determine the changes in the intestinal wall. There is no invasion of the circulation, no septicemia in these infections.

Influenza must in all probability be included in this class, although the isolation by Pfeiffer of his bacillus from the blood in some cases may demand that this disease be classed with the "modified septicemiæ."

The infections which develop septicemiæ more or less prominently are: Lobar pneumonia, due to the bacillus lanceolatus pneumoniæ; typhoid or enteric fever, due to Eberth's bacillus typhosus; "bubonic plague," or peste, due to the bacillus pestis of Kitasato; tuberculosis, due to the tubercle bacillus of Koch, and yellow fever, due to the bacillus icteroides, first isolated and assumed by Sanarelli to be the cause of this disease.

In pneumonia there is ample evidence in the "consolidation" of the development of an active chemotaxis, the toxins inducing a determination of the leucocytes to the seat of the primary colony in the lungs, although this attempt at limitation is not as perfect as that in diphtheria, and the bacillus is frequently found in the blood and other tissues, such as the meninges, pleuræ, peritoneum and pericardium, the result of septicemic invasion from the primary colony.

In enteric fever, in peste, and in yellow fever, this effort at protection, no doubt successful in many cases of pneumonia, is wanting. The localized colony gives little or no local evidence of its presence, but is productive of a primary intoxication of varying intensity, the local injury from which results in the passage of the organism into the circulation, the ensuing sepsis being characteristic of these diseases.

What, then, is this quality in some of the infectious pathogens which determines septicemia? And what the quality in others which limits their presence to the site of the original colony?

At present it is the extent of our knowledge that in the former there is no effort on the part of the leucocytes to form protective barriers in order to limit invasion; while in the latter such protection is afforded. These facts have been explained by the theory that the toxin produced, as well as the cytoplasm of the bacteria, exercises a positive attraction for the leucocytes which aggregate into the "false membrane," "consolidation," etc.; and on the other hand that there may be a negative chemotaxis, one resulting in a repulsion of the white cells, in their disappearance from the seat of invasion, and the consequent entry of the organism into the circulation, and the production of sepsis.

This positive chemotactic influence is not common to all the extremely toxic bacteria, since it is absent in tetanus and in cholera, in neither of which is there septicemia. Septicemia therefore does not depend on the presence or absence of the phenomena of chemotaxis, since two of the infections cited, presenting the evidence of positive attraction, are usually powerfully toxic and are limited to local infection, while two others equally toxic exhibit no attraction and yet are absolutely limited to the primary locality. Further than this there is no evidence of a negative or repulsive chemotaxis.

That there is a purely septic infection there is reason to doubt, that is to say, one as purely septic as diphtheria is toxic. The most recent studies in peste have demonstrated that in this disease we probably have the nearest approach to a purely septic infection;[1] and in typhoid fever the disease must be considered a "modified septicemia."[2] The presence in an organism therefore of a pronounced toxicity seems to be the determining factor in accounting for the absence of septicity, since in all cases the latter is present on the more or less pronounced absence of the former.

Is this quality of toxicity in the infectious pathogens a fixed one to the exclusion of other qualities? Or is it associated in them with that of septicity which may become under certain conditions, the more pronounced of the two?

The facts bearing upon these questions are as follows: The bacillus lanceolatus is frequently found in situations, as in the meninges, pleuræ and pericardium, which indicate it as the cause of the diseased condition of these structures, while the lungs are free from the classic signs of pneumonia, and the mode of invasion of these structures in such cases becomes a matter of speculation, "the avenues of entrance for the cocci are in all probability the nose and mouth, and next most frequently through the maxillary and tympanic cavities and the cribriform labyrinth by way of the vascular and lymphatic routes."[3]

There occurred recently in the hospital service of my friend Dr. Lesage of Paris, France, an epidemic infection from this organism which serves to illustrate the varying degree of toxicity which it may develop as well as its septicity. Among a number of infants ranging from two months upward, there started an acute fulminant disease, resulting, in the first case, in death within forty-eight hours. The symptoms were those of intoxication; there was little prodromic manifestation, the attack usually commencing with fretfulness and convulsions. The temperature did not range high, there was profound impression upon the nervous centers, the little ones dying comatose. Nearly all the children in the ward were attacked; nearly all died; the mortality was startling. Himself a noted bacteriologist, Lesage was alive to the possible infecting cause in these cases, the possibility of their being due to other cause than bacterial intoxication having been quickly eliminated. From each case during the continuance of the disease and from the cadavers there were made numerous plantings of the blood, and of the juices of the liver and spleen, and of the pericardial, pleural and cephalorachidian fluids. From these cultures he was enabled to conclude that the infecting organism was the bacillus lanceolatus pneumoniæ; that it was present in the bronchial mucus in all of them; that it was present in the blood and other tissues in many; that a certain number gave no colonies save from the tubules of the lungs, that is to say, the tissues were sterile, there had been no septicemia. In none of these cases had the symptoms been those of infantile pneumonia, nor did the lungs present any signs of consolidation when examined post-mortem, there being at most a catarrhal bronchitis.

In these there is demonstrated the possibility, nay the fact, of the development of the toxic quality of bacillus lanceolatus to such a degree that death took place from the absorption of the toxin from the colony localized in the lungs, where the organism was found in the bronchial muco-pus, without the classic local reaction and without the invasion of the circulation from the primary colony; *a purely siderante type.* Also the fact of the pulmonary infection, followed by septicemia, in cases presenting no signs of pneumonia, the organisms being found throughout the body; cases of secondary infection, or rather, of intoxication and septicemia. All of the infants developed the infection in the lungs; all showed marked symptoms of intoxication; in none was there a pure septicemia. In some the disease lasted for several days, the septicemic symptoms preponderating.

In epidemic meningitis the bacillus lanceolatus has been found giving rise to the disease, no other organism being present in the sero-pus of the meninges. The point of entrance, in such epidemics, is quite obscure.

From the reported experience it is quite clear that these cases depend on the local colonization

of the bacillus lanceolatus. This then develops a most marked quality of septicity, so injuring the lung tissues that, in the absence of all local reactionary symptoms, a blood invasion takes place and meningeal or other diseases result as a secondary factor, although it may announce the presence of disease.

In diphtheria there is no evidence of the possession of the septic quality by the bacillus of Loeffler. Indeed the active chemotaxic quality is intensely developed in this organism, and clinical knowledge is limited to the classic type of the disease. There is at hand, however, much information relative to the changes in the qualities of this bacillus when cultivated outside of the body. We recognize the pseudo-bacillus—one not exhibiting the quality of toxicity at all—and the existence of a diphtheria bacillus, which, lacking its toxicity, has developed a marked septicity for animals.[4] Further observation may demonstrate similar mutations to those seen in the bacillus pneumoniæ.

In enteric or typhoid fever there is an abundant literature to establish the view that the disease is frequently independent of any invasion of the alimentary canal, since the typical lesions are frequently absent from its mucosæ, and much to indicate a primary invasion of the lungs with secondary sepsis. The toxic quality of Eberth's bacillus is not pronounced, that is to say, to the extent of producing marked local reaction, and since Calmette has described rather characteristic alterations of the glandular follicles of the small intestine in those dead of peste, it would seem more than probable that the glandular changes are due to the toxin, whatever may be the site of the original colony of the germs.

In typhoid the disease quickly assumes the septic type in all cases in which the bacillus develops the septic quality. It is not possible to determine how many cases of incipient typhoid intoxication occur which present only the primary phenomena common to most of these intoxications and result in the arrest of the disease in this stage, or short of the development of a septicemia, whence result all the symptoms of typhoid after the first week, but there must be a great many of them. Nor is it improbable that many acute conditions, ending fatally and presenting no classic pathologic changes, are *typhoid intoxications* similar to those *siderante* types of yellow fever and peste to be mentioned further on. The mutations of the organism of Eberth are known in the number of pseudo-bacilli which have been isolated, but I am not aware of any clinical recognition of the *foudroyant* type of the disease. A recent study of this question has resulted in the conclusion that the bacillus typhosus produces but little toxin (in artificial media) and that typhoid fever must be considered a "modified septicemia."[5]

There is no intention on my part to antagonize the long prevalent views as to the mode of invasion of the germ in typhoid fever, but there can be no doubt that they must be modified, if not entirely abandoned, and that sanitary measures must be directed as much to the prevention of the inhalation of germ-laden dust as to the drinking of polluted water.

In peste, the conclusions of the mixed commission which studied the disease at Oporto, Portugal, during the prevalence of the disease in that city, in 1899, demonstrate that the disease is almost purely a septicemia. M. Calmette, the French member of the commission, in a most learned memoir, states that there are at least two varieties of the disease, the "classic bubonic plague" and the "pneumonie pesteuse." Recognizing the importance of abrasions or cuts in the cuticle as a ready route of entrance for the germ and giving instances of such artificial infections, all of which resulted in septicemiæ, he mentions cases which seemed to originate as *lung infections*, or as pulmonary peste.

These were rare, the larger number seeming to be "bubonic," that is to say, they were septic from the commencement of the disease, the buboes being developed at the time of the first examination. In all of his cases cultures were made from the blood upon their entrance into hospital, and in all cases the bacillus pestis was recovered, provided the planting had been done before the administration of the Roux "sérum anti-pesteuse." He decides therefore that peste is almost a typical septicemia.

There were however a number of cases mentioned presenting primarily the classic symptoms of "bubonic plague," which, to his chagrin, suddenly became complicated by severe pulmonary symptoms and died, although at first they were considered quite benign. Calmette exhibits marked power of observation up to this point in his work, but here he allows the presence of the bacillus pestis in large numbers in the lymphatics leading from the lungs to influence him to the conclusion that these pneumonies are due to an invasion of the lung structure *from the blood*, in which the bacillus is (somehow) primarily located, through the lymphatics which enter, or pass out through their roots, forsooth because the edematous, sodden lung teems with the bacillus pestis.

Nothing can be more far-fetched than this explanation; first, because it offers no opinion as to the mode of original invasion in the typical bubonic cases in which wounds of the cuticle are not present; and, second, it gives too much importance to a pathologic condition in the lungs which is not peculiar to this disease alone and is due solely to the continued influence of the toxins upon the structure of the lungs, directly or indirectly. This results in almost total loss of elasticity of the resilient tissue supporting the terminal vessels. These in turn, losing this support, become congested; there is interstitial edema and a condition of semi-consolidation, only typical of such injury to the elastic tissue of the lungs. This condition is quite common to influenza, in which disease it is frequently erroneously diag-

nosed as pneumonia or broncho-pneumonia. The organisms forming the primary colony in the lung in cases of peste would increase enormously under such conditions of the lung favorable to their development and the lymph-channels as well as the blood would teem with them. Calmette states that these cases resist the "sérum anti-pesteuse" and are fatal. Similar observations were made by a committee appointed by the Department of Health of Berlin, Germany, for the consideration of plague measures, and mention is made in its report of cases in which death occurs before any appearance whatever of localization, before the patient is even made aware, by pain, of his condition.[6] Dr. Schmidt also encountered notable pulmonary engorgement, with bloody, frothy sputum, and râles, but no evidence of pneumonia in eighteen of twenty-four cases and in all of these the peste bacillus was found in the sputum.[7]

From these facts there are, then, cases of peste which, commencing as a recognized lung colonization, more or less quickly develop sepsis and exhibit the usual signs of bubonic plague; others which exhibit no lung symptoms at first, and are simply bubonic in type, until the later appearance of very grave lung symptoms, which terminate fatally. Whether there may be *siderante* types of peste, Calmette does not determine, but reports[8] from the foci of plague of rapidly fatal cases should attract attention to this probability, and under epidemic influences every case of sudden death should be investigated bacteriologically. The probability of numerous cases of peste of so light a type as to escape medical observation during the prevalence of the disease is clear.

I therefore submit that the theory of Calmette as to the mode of infection in peste is in error, save in the rare cases which he describes as pulmonary, and I advance the facts, as given in this disease and the other infections mentioned, to establish that peste is essentially a respiratory disease; that the bacillus, being preeminently septic, gives rise to but slight local reaction in the lungs and passes readily into the circulation, causing septicemia, the "bubonic" symptoms being *always secondary*.

The bacillus pestis is known to be changeable, and I have seen two isolations of this organism from cases of peste in which the quality of septicity was found wanting when the bacillus was injected into animals, the organisms producing no appearance of disease. If, however, this changed bacillus is placed upon the mucosa of the nares, infection takes place and sepsis results. These observations are not unique in that in no other infectious pathogen has the quality most pronounced, after infection has taken place, been found wanting when the germ has been recovered, but that they demonstrate that reinfection through natural channels serves to prove its specificity and restore its septicity.

With reference to the exhibition of the qualities of toxicity and septicity by the bacillus icteroides in yellow fever the conditions are very patent. From a close observation of the disease in man, both in the tropics and in the Southern States, and of the disease as produced in animals by natural methods of infection, I am convinced, as shown in the conclusions arrived at by the Commission of which I was the senior member,[9] that the bacillus icteroides possesses both these qualities in a marked degree. My observations have demonstrated that yellow fever of the foudroyant type, in which the patient becomes at once desperately ill and dies within forty-eight hours, is due to the intensity of the intoxication from the colonization of the bacillus *in the lungs*, and that in them there is no exhibition of the secondary sepsis, that is to say, of the presence of the bacillus in the blood or organs. Also in the large number of well-developed cases of yellow fever, with possibly lessened toxic power, the bacillus exhibits marked septic power, giving rise to the septic symptoms known as the "third stage" of the disease, the "first stage" being due to the primary colony in the lung tissue, whence the bacillus invades the circulation. The great probability of there being numerous cases of this disease so ephemeral as to escape diagnosis during epidemics, or in endemic areas, is made evident by our clinical experience under such conditions. The disease has been known to exist for months without correct diagnosis because of its mild character.

During my studies in yellow fever I have not observed the pseudo-bacillus icteroides, and I realize that this must be very difficult in view of the close relationship between many of these organisms in their biological and cultural characteristics.

In the infections with the tubercle bacillus of Koch there have been almost inexplicable abnormalities, such as the primary colonization in the joints, in the testes, in the meninges, the pleuræ, or the peritoneum. This has been so marked that many of them have been explained only on the hypothesis that the organism must have entered the body of the embryo through the placental circulation, and there remained dormant, producing disease only when some accident to the tissue in which they may lie is sustained. This cannot explain all cases. In the classic type of tuberculosis of the lung the toxicity of the germ is developed to the extent of the production of an aggregation of cells, the grey tubercles, which limit more or less perfectly the diffusion of the organisms, and thus prevent sepsis or the invasion of the blood and other organs from the primary colony. These limited infections may recover, or they may progress very slowly, unless influenced by some complication. In other cases the reaction at the seat of infection is slight, the bacillus invades the circulation and sepsis results in the deposit of the bacillus at some point or points at which a new colony may be formed with all the expressions of local tuberculosis, the colony in the lung progressing or not to local destruction of tissue.

It does not, however, seem probable that there may be developed the "foudroyante" type of tuberculosis, the tendency being rather to the development of the septic quality of the disease.

Of course, these infections are considered to be pure, and there is no intention to introduce the idea of mixed infection by the use of the terms "primary" and "secondary," as they apply only to the germ producing the specific infection.

From what has been said it is evident that the toxic and the septic qualities coexist in many of the infectious pathogens; that in a few of them the former alone is exhibited, with or without the phenomena of chemotaxis, while in others they are both pronounced; and, finally, that in at least one case, bacillus pestis, the latter quality may be developed almost to the exclusion of the former. Therefore their coexistence would seem to determine that the two qualities are not antagonistic, and yet it is only in the presence of extreme toxicity that we do not have sepsis, and that the less pronounced the intoxication the more readily is sepsis developed. The examples of bacillus pestis which have lost their septic quality, as already alluded to, and that of bacillus diphtheriæ, which, having lost its toxicity, has developed a heretofore unrecognized septicity, demonstrate that, like toxicity, the quality of producing sepsis is inherent in the pathogens, of less potential it may be than the former, and apt to be overshadowed by it.

This quality, evidenced by the presence of the organism in the blood whence it may pass into any tissue, must depend upon some specific injury to the tissues at the seat of the primary colony, which is of such a nature that the invasion of the blood can take place. That this is not dependent on the presence or absence of local reactionary symptoms is shown by the two most prominent of the truly toxic diseases, diphtheria in which there is local reaction and tetanus in which there is not, and in neither of which is there sepsis. Septicity is a factor in the equation of the acute infections which must be recognized, since this recognition will result in an explanation of those obscure points in the natural history of these diseases which have proved veritable stumbling-blocks both to the clinical and didactic teachers.

In such diseases as typhoid fever and gonorrhea, in which the infection may take place from the mucosa of some organ other than the respiratory tract, the septic quality will be as readily followed by sepsis as from infections along this tract. The law, then, in these acute infections, which governs the formation of the types of cases encountered in all of them, is that the infection having taken place, *the type of the disease must depend upon the development in the infecting organisms of the inherent qualities of toxicity and septicity; that if toxicity preponderate there will result the toxemiae, and if septicity be the more pronounced the septicemiae will be produced, since these qualities coexist in each infective germ, the one or the other being exhibited in greater perfection according to environment.*

I fully appreciate the desirability of having at hand more information drawn from experimental work in this matter, but it may not be necessary always in order to present a truth formulated on experimental and clinical study of one infection (in my own that of yellow fever) which can be applied to other infections, to present actual experimental work in those allied infections in evidence. Also that conditions, not theories, having been established in one infection, the laws relating thereto may be applied to all infections in so far as their application can explain the peculiar characteristics of such infections.

The influence of these facts has been materially felt in the production of the curative sera, those infections characterized by mixed toxic and septic symptoms, such as enteric fever, pneumonia and yellow fever, having thus far yielded but slightly to such treatment, while the most toxic, as diphtheria and tetanus, and the most septic, as plague, have been benefited by their appropriate sera. Therefore it appears likely that until it is possible to dissociate these qualities in any specific organism and to utilize the one desired, it will be impossible to produce a curative serum with anything like the beneficence of the diphtheria antitoxin.

BIBLIOGRAPHY.

[1] Calmette and Salambini. Annales de l'Institut Pasteur, Dec., 1899. Tome, XIII.
[2] P. Horton-Smith. Gulstonian Lectures, Lancet, March 24, 1900.
[3] Collins. Twentieth Century Practice, pp. 372–3, Vol. X.
[4] Davis. MEDICAL NEWS, April 29, 1899.
[5] Veröffentlichungen des kaiserlichen Gesundheitsamtes, No. 49, 1899.
[6] N. I. Schmidt. Vratch, March 11, 1900.
[7] Tchistovitch. Annales de l'Institut Pasteur, April, 1900. Tome, XI.
[8] Report of Medical Officers Marine Hospital Service. July, 1899.

TOTAL EXTIRPATION OF THE URETER.

BY WILLY MEYER, M.D.,
OF NEW YORK;
PROFESSOR OF SURGERY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON TO THE GERMAN AND NEW YORK SKIN AND CANCER HOSPITALS; CONSULTING SURGEON TO THE NEW YORK INFIRMARY.

TOTAL extirpation of the ureter means the removal of the entire canal from a point just below the pelvis of the kidney to its very entrance into the vesical wall. The operation is done either simultaneously with nephrectomy (primary) or some time, sooner or later, after this interference (secondary). The primary operation is rarely carried out. It means for the patient a serious addition to the risk connected with removal of the kidney; it requires more time and, consequently, a longer general anesthesia, both important factors in this particular operation; in cases of suppurating or of tuberculous kidney it will often render impossible the task of maintaining an aseptic condition of the large retroperitoneal wound. Tamponade followed by secondary suture will then become necessary. This complicates the after-treatment and prolongs convalescence. We

shall, therefore, oftener hear of secondary than of primary total ureterectomy.

Inasmuch as the operation is always simultaneous with or consecutive to nephrectomy, the same pathologic condition that had induced the surgeon to extirpate the kidney will be found to exist in the ureter.

Those who have followed the evolution of renal surgery know that conservatism has taken a firm hold in this chapter of our science. To-day the kidney is at the first operation removed only in cases of tumor, primary tuberculosis, and exceptionally severe cases of suppuration; and even in these affections a few authors have recently argued against sacrificing the entire organ. Whether such an attitude is justified, the future will show.

It appears proper to review separately these three indications for primary nephrectomy recognized to-day by the majority of surgeons, with regard to their influence upon a probably following total extirpation of the ureter.

1. *Tumor of the Kidney.*—As a matter of course, only malignant growths come into consideration. Of these I exclude such as did not primarily originate in the kidney. As far as I have been able to ascertain, a case of total ureterectomy for carcinoma or sarcoma of the kidney has not been reported in literature. Of course, if the ureter should appear to be involved in the disease, no surgeon would hesitate nowadays to make his operation a radical one, even if he should be obliged, owing to the serious condition of his patient at the time of the first operation, to wait a few days before doing ureterectomy. Nevertheless, it is evident that in the majority of cases the ureter need not be removed entire. If the latter organ has become involved in the disease to its entire length, the trouble will in almost every instance be beyond the reach of the knife. Thus, ureterectomy in cases of malignant renal tumor will generally be a partial one. The operator will do well, in every instance of this kind, to remove as much of the upper portion of the ureter as he can reach from the wound, without subjecting the patient to an additional operation. If he has done that, he will have carried out what appears to be necessary in the given case.

2. *Tuberculosis of the Kidney.*—In fourteen cases of renal tuberculosis where I had to perform nephrectomy, the ureter was not totally extirpated. In all these the wound closed without leaving a sinus, although scraping and proper treatment of the wound became necessary, now and then, toward the end of convalescence.[1] If materially infiltrated, the proximal part of the ureter was resected as far down as possible; if not especially affected by the tuberculous process, the tube was simply cut off below the kidney and dropped back into the retroperitoneal space. The latter procedure I practised up to several years ago. However, since I have observed a case in which the greater part of the urine from the healthy right kidney was discharged through a fistula in the left loin where the ureter had been simply cut off after extirpation of a tuberculous kidney, I have modified my method, and now invariably cauterize the lumen of the distal end with a Paquelin, and then tie it with catgut. Prior to operation the cystoscope had shown, in the case just referred to, the mouth of the right ureter to be healthy; that of the left much ulcerated. By the ulcerative process the physiologic valve-action of the ureteral mouth had been completely destroyed. The urine, after having descended from the right kidney, simply ran up and out of the open lumen in the left lumbar region, principally when the patient was in a recumbent posture.

Primary total ureterectomy for tuberculosis is certainly rarely indicated. Howard A. Kelly of Baltimore, James Israel of Berlin, and a few others have reported such cases. Here it was seen during nephrectomy that the ureter was very seriously affected. Partial resection of the renal portion would have been equivalent to an incomplete operation.

In the majority of this class of cases, however, I think, the ureter will take care of itself, if the case had been correctly diagnosticated in the beginning of the disease, and then promptly subjected to nephrectomy. With the source of the trouble, *viz.*, the primarily diseased tuberculous kidney, removed, the continued reinfection of the ureter ceases, and the tuberculous process within the ureter heals. The cystoscope nicely corroborates this assumption. In the majority of cases of primary renal tuberculosis, the cystoscope shows the corresponding ureteral opening ulcerated. If the correct diagnosis be established early, and nephrectomy carried out promptly, these ulcerations around the vesical end of the ureter disappear. It is to be expected that the same will happen with tuberculous infiltrations or ulcerations farther up within the canal; in other words, that the process within the ureter heals.

In a very interesting case of this class I saw the formerly much-diseased ureteral mouth fully restored four months after nephrectomy. The patient, a woman of forty-six years, had been sick with urinary symptoms not quite a year. She is absolutely cured and well up to date.[1]

It seems to me that the cystoscope might often furnish the best means for determining the indication for secondary ureterectomy in tuberculous cases. If these ulcerations of the ureteral mouth and in its immediate neighborhood persist after *an early nephrectomy* on that side, we may conclude that the tuberculous process within the ureter has no tendency to heal.

[1] In one case, I learned lately, the lumbar wound broke open again about eight months after nephrectomy and necessitated the removal of the upper portion of the ureter.

[1] MEDICAL NEWS, May 1, 1897.

On pressing upon the hypochondriac region during cystoscopy, we shall then probably also observe the entrance of pus from the ureter into the bladder. I think that we can rely on these cystoscopic facts.

Another indication for secondary ureterectomy in tuberculous cases may arise if the original wound, which had thoroughly healed at first, breaks open again and a sinus establishes itself.

A few months ago a lady was sent to me by one of the leading surgeons of this city with the request that I establish the presence or absence of a tuberculous process in a ureter which had been left behind after nephrectomy. The operation had been done by a surgeon outside of New York, for—it was stated—tuberculosis of the left kidney associated with stone. Lately the lumbar wound, which had at first closed firmly, had reopened and the lumbar fistula annoyed the patient. Her physician at home had diagnosed: Continuation of the tuberculous disease within the ureter of the formerly affected side. He advised immediate removal of the whole canal, an operation which was much dreaded by the patient, and for which she was for special reasons ill prepared at that particular time. Her doctor had insisted on the advisability of immediate interference, however, and sent her to New York for that purpose. The questions which I was asked to solve were: Is the left ureter diseased? If so, is it tuberculous? Does the pus in the urine come from that ureter or from the right kidney? The cystoscope showed a rather healthy bladder and the left ureteral mouth not ulcerated; but a flake of pus rested in its lumen and projected into the fluid within the bladder, swaying to and fro. On pressing over the course of the left ureter from without, a few more drops of thick pus were seen to slowly enter the bladder and drop into the fundus. In view of the suppuration within the ureter, but the total absence of ulcerations around the ureteral mouth and in the bladder, in view also of the extreme rarity of the combination of the two pathologic processes in the kidney—tuberculosis and stone,[1] I expressed the opinion that the removed kidney had probably not been tuberculous, but a pyonephrotic stone kidney, and that now, perhaps, an impacted stone or a stricture of the ureter was the cause of the intra-ureteral suppuration. I thereupon advised, if the lumbar fistula should persist in annoying the patient by its discharge, to cut down on the ureter at a time convenient to the patient and remove the stone; or, if the ureter should be found more seriously diseased, or if a stricture should be the cause of the trouble, to extirpate the entire canal. On microscopic examination of the pus discharged from the lumbar sinus, done later, tubercle bacilli could not be detected, nor could their presence be demonstrated by urinary analysis. The further development of the case up to date seems to prove the correctness of my conclusions.

In none of my cases of renal tuberculosis, where the patients died months or years after nephrectomy, could the cause of death be attributed to the fact that a probably diseased ureter had been left behind. Nevertheless, the statement that the ureter of a tuberculous kidney, provided the trouble had been diagnosticated and attacked *early*, can generally be safely left behind, is not conclusive by any means. Only carefully conducted autopsies on patients who died after nephrectomy for tuberculosis, without ureterectomy having been added, will clear up this question. To-day we can say this much, however, that total extirpation of the ureter in combination with removal of a tuberculous kidney is indicated only if the tube is visibly enlarged and suppurating.

3. *Pyonephrosis and Pyonephrotic Stone Kidney.*—It was the operation performed on a case belonging to this class that induced me to write this article. I will discuss this indication for total extirpation of the ureter in the course of my statement of the history of the case.

G. H., twenty-three years of age; born in the United States, has always been perfectly well in regard to his urinary system until five years ago when, suddenly, without any apparent reason, he was seized with lumbar pain, more pronounced on the left than on the right side. A few days later a rather severe hematuria set in. Blood was found to be intimately mixed with the urine. He passed blood for six to seven weeks. After that a good deal of mucopurulent deposit was found in the urine. The hematuria never returned, but the turbidity of the urine continued. About two years ago micturition became more frequent; the patient urinated every two hours during the day, not at all during the night. The act of micturition was not accompanied with pain. There was no tenesmus. He had never passed a stone.

When first seen by me in June, 1897, he urinated four to five times during the day, with some pain at the neck of the bladder during the act of micturition; nights, but once. Of late he had noticed more sediment in his water, and occasionally pains in the left lumbar region, which traveled down toward the bladder. Before that the urine had been quite clear at times, and he had had less trouble and pain. The patient's father had died from phthisis, also his mother, and an uncle and an aunt upon his father's side. The patient himself had often had pneumonic attacks during childhood. He never had gonorrhea. During the last two years he had been at times seized with what appeared to be epileptiform attacks. The patient is a well built, rather muscular young man. On palpation both kidneys appear free from pain on pressure; prostate is sensitive, its right lateral lobe somewhat larger than the left. On massaging the same per rectum, some viscid fluid is discharged

[1] I have observed but one case in which I found an exceedingly small concretion within a tuberculous renal abscess.

through the meatus. The patient maintains that a similar discharge has been frequently observed lately after defecation. Urinary analysis shows: Urine, acid, contains ¾ per mille albumin, few blood cells, little mucus and pus, few hyaline and epithelial-studded casts, no tubercle bacilli, cells of superficial and middle layer of bladder, also groups from renal pelvis. Diagnosis based on this analysis: Hyperemia of the parenchyma of the kidneys with irritation and slight catarrh of the pelvis; possibly a more serious affection of one kidney with compensatory working of the other.

July 3d. Cystoscopy: Multiple hyperemic, slightly elevated spots, disseminated over the whole vesical mucosa. On the left lateral wall, not far from the ureteral mouth, a scarlet-red, diffusely outlined spot with some adherent mucus is detected. The right ureteral mouth shows distinct contours. In its immediate neighborhood the mucous membrane appears normal, of almost bluish-white color. Many injected vessels run from the ureteral opening into the neighboring mucosa. The right ureteral fold, as well as the interureteral bar, is very prominent and not diseased. The left ureteral mouth appears swollen and succulent, less sharply defined than the right, ragged, especially toward the median line, not greatly injected. The surrounding mucous membrane is in the same swollen condition, not ulcerated. The left ureteral fold is not as strictly defined as on the opposite side.

In view of the history of the patient, the trouble was open to the suspicion of tuberculosis. But tubercle bacilli had not been found on urinary analysis; cystoscopy revealed the left ureteral mouth to be swollen, not ulcerated. The other alternative was stone in the left kidney. On account of my pending summer vacation, the patient was for the time being put on a milk diet, increasing doses of guaiacol, and sent to the country. When seen again in the fall his condition was unchanged. The urine appeared as turbid as before. There were often pains in the region of the left, on and off also in that of the right kidney. Frequency of micturition: six to eight times during the day, once or twice during the night. Cystoscopy was repeated with the intention of catheterizing the ureters. Intravesical appearance is little changed. The right ureteral mouth and its immediate neighborhood is in the same condition as it was found four months ago; the left ureteral fold is more prominent; it projects like a small tumor into the bladder. Its mouth appears immovable during several minutes of inspection. No whirls of emerging urine are observed as on the other side. A mucous thread projects from the lumen of the same into the bladder; it sways slightly within the fluid that had been injected into the viscus previous to examination, but it is not pushed off, as is generally seen effected by the jets of intermittently descending urine. Catheterization of the ureters with Casper's instrument: It is easily accomplished on the right side where the tiny catheter is pushed up into the ureter for about one inch to an inch and a half, and 10 cc. of clear urine are collected in twenty minutes. The patient had not ingested any special amount of liquid before the examination. The left ureteral mouth is also easily entered, but the catheter cannot be introduced for any distance; about one-half inch up a distinct obstruction is encountered. On pushing the catheter from without it is seen to be bending at the ureteral opening. Separate drainage of the left kidney is impossible. As the patient had passed 250 cc. of a rather turbid urine just before the examination, this amount together with that drained from the right kidney was sent to Dr. Sondern's laboratory for examination. Report on bladder urine: Acid, specific gravity 1016, moderately marked deposit; amount of urea, 0.019 gm. in 1 cc.; trace of albumin; chlorides approximately 0.005 gm. in 1 cc.; moderate excess of phosphates; no blood; small amount of pus and mucus; some hyaline casts; no tubercle bacilli; numerous cells of the superficial and middle layers of the bladder; considerable amorphous urate deposit. Report on specimen per ureter catheter from the right kidney: Acid, specific gravity 1023; amount of urea, 0.025 gm. in 1 cc.; trace of albumin; chlorides approximately, 0.001 gm. in 1 cc.; no excess of phosphates; small amount of blood (from use of catheter); no pus, mucus, casts, or bacteria; numerous cells of ureter; considerable amount of amorphous urate deposit. Conclusions: Right kidney normal; left kidney, at least a hyperemia of the parenchyma and probably a more marked lesion, with compensating excretory action of the other kidney; with at least a catarrh of the renal pelvis and probably a moderate pyelitis; chronic cystitis.

On basis of these facts the patient was advised to enter the hospital for nephrotomy, probably nephrectomy on the left side. I expressed the view that the pyelonephritis was probably due to stone; that there also was a stricture of the left ureter near its vesical end, the result of former ulceration, or due to an impacted stone. The possibility was mentioned further that in spite of the repeated absence of tubercle bacilli in the urinary specimens the cause of the trouble might be tuberculous.

November 20th. Nephrotomy at the German Hospital. Simon's incision. Kidney large, hyperemic, with fluctuating pelvis, and dilated upper portion of the ureter. No tubercles are found on the kidney surface. The organ is easily brought in front of the lumbar incision. No stone is palpable. Aspiration of the pelvis demonstrates the presence of a slightly turbid fluid. On incising the pelvis about three ounces of the described fluid ran out. The finger introduced fails to detect a concretion. The calices are enlarged. To make things absolutely sure, the renal vessels are compressed by an assistant's fingers and the kidney is incised at its convexity and split in two halves, down into its

pelvis (section cut). There is no stone in the parenchyma either. The renal tissue appears not materially altered. The two halves are stitched together with four to five catgut sutures; the digital compression of the pedicle is then interrupted. The consequent slight oozing at the site of the incision is easily controlled by pressing some aseptic gauze on the wound for a short while.

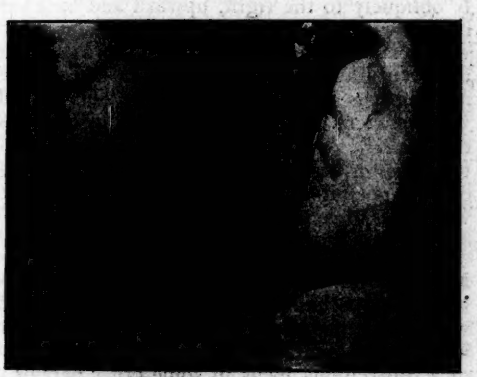
The cause of the hydro-pyonephrosis, then, was not found in the kidney itself. It had to be looked for farther down. The kidney was pushed back into its normal bed, the edges of the pyelotomy-wound were held apart with sharp retractors and the ureter explored. A flexible rubber bougie met an insurmountable resistance about six to eight inches below the pelvis. On introducing a small soft-rubber catheter, cut off transversely at its end, and throwing in sterile water with a hand-syringe, it was seen that about one to two ounces would flow down without reappearing. But on increasing the quantity of the injected fluid, suddenly the whole amount was regurgitated. The procedure was repeated to make sure of the observed phenomenon. The catheter was withdrawn from the ureter, and a long metal probe was introduced instead. It met the same firm, but soft obstruction. There was no feeling of grating. Conclusions: Stricture of the ureter with accompanying hydro-pyonephrosis. The causative factor was so far unknown. Perhaps, in view of the result of the ureteral catheterism, a stone which had traveled down, and was now impacted in the ureter near the ureteral mouth, had formerly set up an ulceration with consecutive formation of a stricture at that spot. In consideration of the comparatively good appearance of the renal parenchyma, at least macroscopically, I could not at the moment make up my mind to remove the kidney. Accordingly the pelvis was drained, the remaining wound tamponed with aseptic gauze, and the patient brought to bed. On the following day I explained the condition to the young man. I stated that I could try to resect the ureteral stricture and perform a uretero-ureterostomy, and thus succeed probably in saving the kidney; but that I could not promise a cure. On the other hand, the treatment might be considerably shortened by removing the kidney, an operation which could still be easily accomplished, and was justifiable, as we knew from the previous separate drainage that its fellow was present and healthy.

The patient decided to have the left kidney extirpated. On November 24th the gauze was removed from the wound, a strong clamp applied to the renal vessels with ureter and the kidney cut off. The wound was sutured at its ends, otherwise left open and drained with strips of sterile gauze. The clamp was removed after forty-eight hours. Recovery was uninterrupted. Early in January, 1898, the patient was discharged with his wound healed and much improved in every respect. I then lost sight of him.

Fifteen months later, in March, 1899, my friend, Dr. Herm. Goldenberg, called on me to inquire what kind of an operation I had performed on G. H. The young man had come to his department in the dispensary of the Mt. Sinai Hospital, complaining of pain in both lumbar regions, frequent turbidity of urine, and general malaise. Separate collection of the urine with Harris' segregator on two occasions had shown the descent of clear urine from the right side and about one to two ounces of turbid, purulent urine from the left. This result was inexplicable, inasmuch as the patient maintained that his left kidney had been removed. In answer to the inquiry, I explained that the left kidney had been removed, but that its strictured ureter had been left behind. I called attention to the possible inaccuracy of the result obtained with Harris' treatment. The latter was at that time on trial in New York in the hands of many colleagues. The doctor promised to repeat the examination for a third time. If the same misleading observation should be made, we agreed that the bladder should first be thoroughly flushed until the water returned clear; a specimen of this clear fluid should be put aside. Then the same amount of clear water should be thrown into the bladder, the catheter, plugged, left in place, and massage performed for a short while along the diseased left ureter. If the water in the bladder should become turbid, it would be proven that the site of the suppuration was within the left ureter. A third trial with Harris' instrument again allowed about 10 cc. of a turbid urine to run from the left of the intravesical watershed. The other experiment gave a positive result. Having later satisfied myself as to the correctness of the massage-test over the left ureter, the indication for ureterectomy was clearly established. On March 18th it was done at the German Hospital, with the incision as devised by James Israel of Berlin. The cut was made through the abdominal wall from the tip of the eleventh rib toward a place corresponding to the middle of Poupart's ligament. The ureter was found to be about the size of the thumb, soft, fluctuating, and covered with a dense network of small blood-vessels. After careful dissection an additional incision was made at the upper end of the wound, parallel to the twelfth rib, into the scar that had resulted from the former nephrectomy, and the wound at its lower end continued to the border of the left rectus muscle. By turning the patient on his right side and placing him in a Trendelenburg posture of various degrees, I well succeeded in exposing the entire canal down to the bladder without ever entering its cavity. It was clearly visible from without that there was a tight stricture at the junction of about the middle and lower thirds of the ureter. When about to tie off the lower portion at its entrance into the vesical wall, a stone of about the size of a large pea was found firmly wedged in the ureter, just above the ureteral mouth. After some efforts

it was successfully dislodged and pressed into the ureter toward the lower aspect of the stricture. Then the upper and lower ends of the ureter were tied off with strong catgut, and the whole organ removed by cutting it off between these ligatures and a clamp, which had been applied about half an inch away from each ligature. In order to catch a possibly outflowing drop of the infected contents of the ureter, aseptic gauze had been pushed below the organ, near the bladder. I thus succeeded in keeping the large retroperitoneal wound absolutely aseptic. The lumen of each stump was then cauterized with the Paquelin, a strip of sterilized gauze run down to them, and the entire abdominal wound carefully closed layer by layer with continuous catgut sutures. The patient made a perfect and uninterrupted recovery. To-day, ten months after the operation, his abdominal wall is firm everywhere; there is no tendency to hernia. Fig. 1

FIG. 1.



Extirpation of Ureter.

shows the extent and present appearance of the scar. The specimen, when cut open, presented a very narrow stricture at the junction of the middle and lower thirds of the canal, as stated. The part above as well as below it was much dilated (see Fig. 2). The stone had a number of sharp projections all over its circumference. They had, no doubt, caused its firm lodgement within the vesicle end of the ureter, just within its narrowest spot, the mouth.

With these pathologic specimens at hand, the history of the case is easily explained: Five years ago this stone entered the ureter, producing pain and the hematuria. At its entrance into the small pelvis it was arrested, causing the ulceration, followed by stricture. Later the stone itself traveled farther down, but was again held up right in front of the ureteral mouth on account of its irregular surface. This second stricture in the course of the ureter, represented by the stone, caused the dilatation of its lower third. That it was this one stone only that gave rise to the many years of sickness is proven by the fact that the patient at no time had symptoms pointing to the presence of a vesical stone, nor did he ever pass any. To-day the patient voids perfectly clear urine at normal intervals. His left side never gives him trouble; at times he experiences pain in the right kidney. Perhaps nephrolithiasis, so often found bilateral, is now developing on his right side(?). He is long back at work, but often annoyed by his epileptic seizures.

This case nicely illustrates what an amount of mischief can be produced by a single renal calculus which cannot pass the ureter. It also shows the necessity of carefully testing the patency of the lower portion of the ureter when performing uretero-ureterostomy for stricture. Had my patient consented to this conservative operation, we probably might have saved his kidney; yet, had I then omitted to satisfy myself as to the rather improbable presence of a

FIG. 2.

a. Extirpated ureter showing tight stricture at junction of middle and lower third, with marked dilatation above and below. *b*. Calculus.

second obstruction farther down, even the successful restoration of the ureteral lumen would have been a failure functionally. On the other hand, it would probably not have been difficult, at the time of such an operation, to mobilize a stone lodged within the vesical end of the ureter, and to push it up in order to be extracted through the ureteral incision before the canal was again closed.

The case further demonstrates the necessity of always testing the patency of the ureter when performing nephrotomy and nephrectomy. By doing so a stricture will be definitely diagnosticated and located. If a grating is felt at the point of resistance, the presence of a stone lodged within the ureter is demonstrated. If the stone can be reached from the lumbar wound, the surgeon ought to try and push it up and extract it. If, however, the calculus is in the lower end of the ureter, the organ ought to be exposed extraperitoneally at once, provided the patient's condition permits of such a procedure. If it does not,

it must probably be done later to avoid further trouble. In a case of nephrectomy for pyonephrotic stone kidney I lately succeeded in nicely pushing up and extracting two irregular stones from the upper part of the ureter. Free irrigation downward into the bladder proved afterward that the canal was unobstructed farther down. If a ureter is filled with a great number of calculi, it is best to excise the entire canal.

I do not believe that a stricture in the ureter without the presence of the stone, whose passage originally caused the stricture, will often necessitate the extirpation of the ureter after the kidney has been removed. It is rarely so tight as to prevent the small amount of mucus discharged above from passing into the bladder. If diagnosticated during nephrectomy we ought not to tie and cauterize the ureteral stump, but rather leave the ureter open and stitch it into the lumbar wound. With proper drainage of the upper part of the ureter into the lumbar wound and, if necessary, with irrigation and dilatation of the ureteral stricture from this wound, the ureter has a better chance to heal.

Since writing this article I have done a second total extirpation of the ureter on a man, thirty-seven years of age, who had his left kidney extirpated by another surgeon for what seems to have been a pyonephrosis, almost four and a half years ago. After this his general health improved, but not the local trouble. Four months later his bladder was drained through the perineum for a number of weeks by the same surgeon; no improvement. One year later suprapubic cystotomy was done, this time in another hospital, without, however, improving his condition. A fistula remained at the site of the incision. Lately he has come under my care. On examination I felt a hard cord in the course of the left ureter, very painful on pressure. A valve-like obstruction at the neck of the bladder prevented the entrance of an instrument, even of small size. Vesical irrigation and cystoscopy were, therefore, impossible. With the view of making as distinct a diagnosis as was possible under the circumstances, I made him pass some urine. The same was turbid but odorless. Then I massaged the left groin downward. The urine then voided was entirely different in color, contained much more pus, and was very offensive. The diagnosis of chronic suppurative ureteritis was established beyond a doubt. On January 4, 1900, I extirpated the diseased ureter. The operation proved to be extremely difficult on account of the old and very firm adhesions around the very much enlarged and soft-walled canal, which had been cut off pretty far below the renal pelvis at the time of the first nephrectomy. I succeeded, however, in removing the entire ureter down to its entrance into the bladder. At this latter spot it was strictured, but did not contain a stone. The patient has made a good recovery and will soon leave the hospital.

By making it a rule always to test the patency of the ureter down into the bladder when doing a nephrotomy or a nephrectomy, and then, according to the result of this examination, adding, immediately or later, the necessary treatment of or operation on the ureter, many a kidney will be saved from extirpation and much trouble be spared to our patients.

MEDICAL PROGRESS.

The Cecum and Its Appendix.—G. Perondini (*Revue de Chirurgie*, August, 1900) gives the result of extended observation on the anatomical relations existing between the cecum and the appendix; he finds that in eighty-three per cent. of the cases the cecum is situated in the lower part of the right iliac fossa; next in frequency he finds it located in the middle of the iliac fossa or in the pelvic fossa or in the umbilical region or in the lumbar fossa. The direction of the axis is usually obliquely to the right, upward and backward; in two cases it was transverse, while in three it was vertical; the serous covering was complete in seventy-five per cent. of the cases examined; its length is usually 6 centimeters and its width 3 centimeters. The appendix was in most cases cylindrical, vertical, and within the cecum; in ten cases it was retrocecal; the average length of the appendix was found to be 7.6 centimeters, while the breadth averaged 5 millimeters.

Radical Treatment of Tubercular Testis.—A. Moschowitz (*Med. Rec.*, September 15, 1900) states that it has not yet been definitely decided whether or not there can be a primary tuberculosis of the genital tract without the coexistence of a tuberculous focus in some other part of the body; yet we not infrequently see patients with a tubercular nodule in the epididymis, who give no other tubercular symptom. The danger of such a nodule lies in its power to infect the entire genito-urinary tract, the tubercle bacilli being carried by the seminal secretion into the corresponding vas deferens, infecting first its scrotal, then its inguinal and abdominal portions, until the entire vas deferens up to the seminal vesicles is involved; then the seminal vesicles are infected and, finally, the corresponding lobe of the prostate is involved. Bearing these facts in mind, it is evident that simple castration is not radical enough to check the ravages of the disease; hence the following treatment is advised. Castration should be performed by the usual method and through the usual scroto-inguinal incision with the exception that the vas deferens is primarily not divided at the level of the vessels, but is carefully isolated from the other structures of the spermatic cord, and left in connection with the testicle; then as much of the vas deferens is pulled out of the inguinal canal as can be done without running the danger of tearing it off. After placing a ligature around it, it is divided and the proximal end is carefully seared with a Paquelin cautery, so that in the subsequent ma-

nipulation no opportunity shall be given for any exuded material to infect the channel of the vas deferens between the peritoneum and the bladder; after removal of the testicle the external incision is closed with or without drainage. The patient is then placed in the lithotomy position; a sound is introduced into the bladder to serve as a guide, and a curved incision is made in front of the anus, extending from one tuberosity of the ischium to the other—the so-called prerectal incision of Zuckerkandl, or, more preferably, Kocher's "pointed arch" incision; after division of the superficial and deep perineal fascia, and of the tendinous union between the bulbocavernosus muscle and the external sphincter of the anus, the urethra being held to the front by a blunt retractor, the space between the rectum and urethra is deepened by blunt dissection, until the levator ani, or more particularly its anterior portion—the levator prostatæ—is reached. This is then divided by a pair of scissors; the divided muscle retracts, and the prostate and diseased seminal vesicles are reached by the palpating finger; the finger of the left hand is introduced into the rectum and hooked over the upper border of the prostrate; traction is exerted and it is surprising how much of the prostate and seminal vesicles can thus be brought into view; should this, however, be impossible on account of adhesions, the seminal vesicle may be grasped by a clamp and gentle traction made to liberate it further; proceeding in this manner the entire unruptured seminal vesicle and the remaining portion of the intra-abdominal part of the vas deferens are brought into view. That the entire vas deferens is being extirpated can be recognized by the attached ligature and the seared surface. The seminal vesicle and vas deferens are by this time attached only by the ejaculatory duct which can be readily cut off; tamponade of the wound and possibly the insertion of one or two sutures into each angle of the perineal incision terminate the operation.

Osteoplastic Amputation of Long Bones.—Z. Samfirescu (*Revue de Chirurgie*, August, 1900) advocates the use of his method in cases of amputations in the continuity of the long bones of the extremities; this method consists in the formation of an osteoperiosteal flap, applied to the cut surface of the amputated bone; this gives a smooth stump covered over with periosteum and one most serviceable for the adaptation of an artificial limb. By this method the amputated bone and its diaphyseal segment unite just as soft tissues do, thus giving strength and solidity to the limb, preventing the growth of bone after amputation, and obviating the sensitive stump so often seen after the old method of amputation. While the operative technic is elaborate and consumes more time (forty to forty-five minutes) than is usually required in amputations, the author believes that subsequent permanent advantages derived from such a stump compensate for the time taken up by the operation.

Cancer of the Breast.—S. Keith (*Lancet*, August 18, 1900) says that there are but three questions of interest to both lay and professional minds, *viz.*, is it increasing; is it hereditary, and is it curable? In regard to the first two questions there is still much ground for doubt; the third question, he believes, can be answered more positively and affirmatively, yet he considers "cure" as an indefinite term unless the number of years after operative procedure is stated. Three years after operation without a recurrence of the cancer is in his experience too short a time-limit to determine permanency of cure. The removal of the breast and axillary glands is not accompanied by any serious risk; the removal of the superficial fat of the breast is as important as the removal of the pectoral muscles, as the lymphatics pass into the superficial fat. Halsted's operation he believes to be too extensive for weak patients.

Pneumonotomy with Resection of the Ribs.—M. Christovitch (*Revue de Chirurgie*, July, 1900) narrates the case of a man, accidentally wounded in the lung by a bullet, which entered at the level of the third left intercostal space. As no mark of exit could be found, it was concluded that the bullet had lodged in the lung. A simple antiseptic dressing was applied; three days later the man gave symptoms of pleural effusion, with considerable rise of temperature, until the sixth day, when his condition became so critical that an operation seemed indicated; puncture in the seventh intercostal space revealed the presence of purulent blood-tinged fluid, all of which was removed by a free intercostal incision; a small portion of the chest-wall having been resected, the bullet was felt in the lung tissue. A V-shaped flap was made over the upper part of the lung; the lung was incised and the bullet was extracted together with small foci of gangrenous lung tissue; the hemorrhage, which was slight, was controlled by gauze tampons, and free drainage was secured by the insertion of two medium-sized drainage-tubes. After an uneventful convalescence of seven weeks the patient left the hospital cured.

Kahler's Disease.—D. Allocco (*La Riforma Medica*, June 19, 1900) records the case of a man, a shoemaker, aged seventy-five years, whose previous personal and family history were negative until nine months previously, when he began to notice pain over the sternum at a spot corresponding to the pressure caused by use of a shoemaker's iron-shoe. Later a painful swelling, the size of a small orange, developed over the sternum, between the second and fifth rib, extending beyond the right and left edge of the sternum; this swelling had a pulsation synchronous with the heart's beat; over it the heart sounds were readily heard, the second sound being markedly accentuated; pulse was regular, strong, and synchronous with pulsation of the sternal tumor. Two months later pain and

swelling appeared in the left upper extremity, soon followed by a spontaneous fracture at the juncture of the upper and middle third of the humerus; a few weeks later painful nodules appeared on the ribs, having the same general appearance as that on the sternum which had become larger in volume; the skin over the sternal tumor was livid and appeared necrotic in spots; a Pravaz needle inserted into the sternal mass proved it to be solid. Soon fracture of the ribs occurred at the site of the nodules already described, followed now by spontaneous fracture involving the right humerus. The patient's general condition had meantime grown steadily worse. A tumor soon appeared at the crest of the left iliac bone; this mass grew rapidly in size; on palpation a disc of bone could be distinguished free in the mass; except for pain in the bones on passive movement, there were no other marked symptoms. The anemia and cachexia increased gradually, until at the end of the eleventh month from the beginning of the disease the patient died. Autopsy revealed the presence of uniform bone changes which consisted principally of a rarefaction of the medulla of the bones; although in life the vertebræ had given no clinical signs, they were found to be the seat of the same process as was found in the sternum; the heart was anemic and dilated; the liver diminished in size, while the spleen was somewhat enlarged; the kidneys were congested. The interest in the case lies in the question of a diagnosis in life; at first it appeared as though the sternal swelling were an aneurismal tumor involving the arch of the aorta; not until other osseous symptoms arose was the correct diagnosis possible. Whenever there is a history of such bone swelling and fracture one may expect to find *a marked and persistent albuminuria;* these symptoms, together with the progressive nature of the disease, characterize Kahler's disease.

Massage in Peri-Articular Fractures.—G. Woolsey (*Annals of Surgery,* September, 1900), acting on the theory of Championnière that immobilization of a fracture relieves only the primary pain due to the movements of the fractured ends on one another, allowing or favoring the secondary pain due to swelling of the surrounding parts that it imperfectly restores the original form of the part, especially in fractures near joints, when the swelling may produce the deformity; that it does not favor the repair of bone or the restoration of function, but, on the contrary, causes scantiness of callus, sometimes resulting in delayed union or in stiffness of the neighboring joints or atrophy of the muscles of the limb has found that *massage* in fractures, peri-articular ones especially, gives striking results, shortening the time of repair by one-third, and of functional use by one-half or more, avoiding subsequent stiff joints and atrophied muscles. Splints or retentive apparatus should be employed between the applications of massage, as it gives a greater sense of security to the patient, as well as to the surgeon, to feel that in the interval the displacement of fragments is not possible; in Pott's fracture, where there is a strong tendency to a posterior displacement or lateral mobility, one may have to forego massage and leave the foot in a plaster splint. Massage is usually begun about the third day after the receipt of the injury, although it may be employed in various cases from the first or the seventeenth day; it must be begun carefully and gradually increased. As far as functional result is concerned, it is better to put the fracture up in plaster first and massage afterward, than the reverse; in a series of forty-seven hospital cases, the date of first being allowed up out of bed, after Pott's fracture, averaged nineteen days; care should be taken not to allow the patient to walk too soon or too much without support. In fracture of the patella there is no treatment which yields better results as to union and function than massage combined with elastic compression at first and passive motion later. Massage is equally valuable in fractures into or near the elbow-joint, also in Colles' fracture; the latter may be treated without splints from the first, with only a bandage around the wrist; it is also applicable in a limited number of fractures of the shaft of the long bone, where there is no great amount of deformity. Massage is contraindicated in compound fractures; in fracture with large blebs or a projecting fragment, great mobility or a tendency of the deformity to be reproduced and in certain fractures of the long bones. The application of massage and passive motion is easy; it relieves pain and swelling; hastens callus formation and solidification, and prevents atrophy of the muscles and stiffness of the joints and tendons. Particular attention should be paid to the position of the limb, by carefully reducing any deformity and keeping it reduced during massage and between the periods of massage, when the limb is in a splint. If this is not possible from the outset, after a preliminary massage, a plaster splint should be applied and kept on for from eight to fourteen days, and then massage commenced; the result in these cases is better as far as position is concerned, equally good functionally, and nearly, if not quite, as quickly obtained as when massage is employed from the first; if, after massaging for some time, the position is found to be imperfect, or if, after three weeks, quite firm union has not taken place, use a plaster splint for eight to fourteen days, although the functional result may be delayed thereby.

"Gun-Stock" Deformity in Fracture of the Humerus.—L. A. Stimson (*Annals of Surgery,* September, 1900) notes that fracture of the lower end of the humerus in some of its forms is not infrequently followed, especially in the young, by a conspicuous deformity of the limb known as cubitus varus or "gun-stock" deformity, which consists in marked permanent adduction of the

forearm which is most apparent when the elbow is in full extension; the most marked clinical feature is the apparently abrupt movement made by the forearm toward the ulnar side as the limb approaches full extension, and the peculiarly ungraceful appearance of the limb in this position; flexion, extension, and rotation are usually normal; the elbow viewed from behind shows the olecranon prominent and slightly displaced toward the inner side; flattening of the inner side of the elbow and fulness of the outer side, on flexion at a right angle, with apparent enlargement of the external condyle below and behind. It seems fair to conclude from cases observed that the common anatomical cause of cubitus varus is not ascent of the internal or descent of the external condyle after fracture extending into the joint, but, on the contrary, it is an angular displacement of the entire lower end of the bone after a supracondyloid fracture, or of its lower portion after a fracture, which is practically a partial separation of the cartilaginous epiphysis. especially at its outer side; the latter form of fracture seems to be possible only at an early age, not over ten or twelve years. Recognition of the displacement ought to be easy by attention to the level of the external epicondyle and head of the radius as compared with that of the internal epicondyle; the lower end of the supinator ridge must not be mistaken for the external epicondyle. Correction of the displacement could probably be easily made by pressure upward and outward against the olecranon in rectangular flexion of the joint, or abduction of the fully extended forearm, and maintenance of the latter position for a week or two, would probably be the surest means of preventing recurrence; but it should be combined with confinement to the bed; full flexion of the joint—so uniformly recommended in the treatment of all forms of fracture in this locality—could not be trusted to correct the displacement, or prevent recurrence, because in all patients seen he has found free flexion of the joint to be possible. As the deformity does not prevent the attitude, the attitude cannot prevent the deformity. If the convenient attitude of flexion at a right angle is chosen, and especially if the fracture is supracondyloid, pressure upward against the olecranon by a supporting sling must be carefully avoided, because such pressure would be transmitted to the inner half of the fragment, and would tend to produce the deviation, which we seek to avoid; the sling should take the weight of the limb at the wrist. In the other, the lower and the common form of the fracture, the rectangular position might be safely taken, if incasement in plaster of Paris was used, and the upper portion of the dressing carried over the top of the shoulder so as to prevent its descent, which would permit or perhaps even produce recurrence of the displacement.

The X-Rays and Thoracic Tumors.—E. Gebauer (*Deutsche med. Wochenschr.*, August 30, 1900) reports a case in which the history and physical signs pointed toward either pulmonary tuberculosis with great infiltration of the glands, a mediastinal new growth or aneurism of the aorta. In favor of the first were phthisical signs at the right apex, a characteristic temperature and swelling of the glands, while against it was the absence of tubercle bacilli. The presence of external dulness and Oliver's sign seemed to point toward aneurism, while the dulness, cachexia and dysphagia indicated a tumor. On examination with the fluoroscope a large pulsating mass was seen above the heart and the diagnosis of aneurism seemed confirmed. The autopsy, however, revealed extensive malignant disease of the esophagus which had invaded the lungs and formed a large mass which received and transmitted the cardiac impulse. The case is interesting as showing the caution necessary in drawing conclusions from radiographic pictures.

Queirolo's Method for Determining Stomach Boundaries.—For the accurate projection of the stomach boundaries on the abdominal surface it is usually considered necessary to inflate the stomach either with CO_2 gas or by direct insufflation of air. By means of a specially devised instrument an attempt has been made to secure greater accuracy without resorting to these troublesome maneuvers, and Edel and Volhard (*Deutsche med. Wochenschr.*, August 30, 1900) have conducted a series of comparative observations in order to determine the relative merits of the two methods. The apparatus consists of an ordinary stomach-tube whose lower end bears a small balloon, while at the other extremity are two small tubes, one connecting with a Marey registering drum, while the other is free and serves for the inflation of the balloon. After introduction this latter is moderately distended with air and, on percussion of the abdomen, as soon as the gastric limits are reached, an impulse is transmitted to the index of the registering apparatus. For the proper working of the contrivance it is essential that a certain amount of air tension be present within the stomach, and then percussion over it causes a sufficient compression of the bulb to affect the telltale. It was found that the method was accurate and gave clear-cut results but that it possessed no appreciable advantages over the older means of diagnosis.

Diphtheria and Antitoxin.—John Leverett (*Phila. Med. Jour.*, September 15, 1900) gives an interesting report of nine cases of diphtheria and calls attention to some points which he has learned about antitoxin. In Cases I. and II. 1000 units of antitoxin were injected as soon as the report was received announcing the presence in the culture of the Klebs-Löffler bacilli. This was about twelve hours after the culture was obtained. The membrane in these two cases disappeared in forty-eight hours and thirty-six hours, respectively, and the patients felt well in

a few days, but cultures showed that the bacilli were present until the thirteenth day. Of the next five cases, which occurred in one family, two died. One of these was a case of laryngeal diphtheria which, in spite of the fact that the patient received 1000 units of antitoxin as soon as the report showed the presence of the Klebs-Löffler bacilli and 2000 units the following day, got worse, although the breathing was easier, and died. The writer thinks that laryngeal diphtheria is so far advanced when it is usually diagnosed that antitoxin is apt to be useless. In the second of these two fatal cases antitoxin was not given, as the disease was so far advanced when seen. The membrane peeled off, however, in due time, and the patient seemed about to get well, when her heart got weak and she died of heart failure. In the three other cases in this family antitoxin was injected as soon as the membrane was noticed, with the result in each case that the membrane promptly peeled off and the patients rapidly recovered. The bacteria persisted in the patients' throats for about sixteen days. The eighth case occurred in a little girl who was accustomed to frequent sore throat. A culture showed Klebs-Löffler bacilli, but antitoxin was not used because the case was so far advanced when the diagnosis was made, and because the family were so firmly convinced that she had only an ordinary sore throat that the writer knew that if antitoxin were given and the patient died, the antitoxin would be considered the cause of death. The membrane disappeared but the patient died of heart failure. The ninth case, that of a baby, received 1000 units of antitoxin as soon as the bacilli were reported and was well and playing about in three days. Antitoxin should always be used in the first few days of the disease before the poison has been thoroughly absorbed into the system, as was the case in two cases here reported which resulted fatally. One important point emphasized by these cases is that the bacilli persist after the patient is clinically well if the case has been treated by antitoxin. This is important as regards the spread of the disease. The writer uses an ordinary hypodermic syringe and says that the antitoxin is best injected under the skin of the abdomen or loins. With a 30-minim syringe the needle will have to be inserted four times to inject 1000 units standard. There will be less pain if injected slowly.

Mental Disturbances After Eye Operations.—Inasmuch as delirium following the extraction of cataract is of not rare occurrence and the textbooks do not give much attention to the subject, W. C. Campbell (*Phila. Med. Jour.*, September 15, 1900) reports 2 cases occurring in his own practice and 22 other cases which have come to his notice, with a view to ascertaining what the causation of the delirium might be and what are the best measures to adopt for its prevention and relief. The removal of cataract is the operation on the eye which is most frequently followed by disturbances of the mind. This disturbance generally consists of delirium which appears usually upon the evening of the third day after the operation and continues from a few days to a week, according to the treatment. This mental disarrangement rarely occurs in the young, but usually in those of advanced age, especially those who are predisposed by heredity, alcoholism, etc., to mental aberration. Toward the evening of the second or third day after the operation the patients become restless, want to get out of bed, and try to tear the dressings from the eyes. Rapid and violent delirium soon appears and often ideas of persecution are present. Although these symptoms are more marked at night, they are not entirely absent during the day. After a few days the delirium subsides without leaving any permanent mental aberration. There is seldom any complaint of pain in the eye, and any rise of temperature is accidental and not constant. These symptoms may vary, but the above is the condition in most cases. The writer discusses briefly the various theories which have been set forth by different observers as to the cause of the delirium. In the 24 cases here reported the delirium appeared eleven times after simple extraction; eight times after the combined operation; three times after iridectomy for glaucoma, and twice in traumatic cases. The ages of the patients varied from fifty to over eighty years. The traumatic cases were much younger. In 2 cases the delirium appeared during the first twenty-four hours after the operation; in 8 cases on the second day; in 6 cases on the third day; and in 2 cases on the fourth day. Both eyes were bandaged after the operation in every case, but in 9 cases the dressing was removed from the unoperated eye as soon as the delirium began, but without any relief to the mental condition. In 9 cases there was no tendency to mental aberration, but in 2 cases such a tendency was well-marked. The character of the delirium was the same in all the cases, beginning with a restlessness which rapidly developed into active delirium with hallucinations and ideas of persecution. All cases recovered their mental equilibrium. The writer believes that the facts presented by these cases dispose of most of the theories advanced by different observers as to the causation of the delirium, and thinks that the cause is largely psychic, due to the preoccupation of the patient prior to and after the operation, and the suspense and tension under which he must be. As to treatment, Campbell gives chloral and bromides freely and repeatedly, beginning at the first sign of the appearance of the delirium.

Ichthoform.—H. Goldmann (*Centralbl. f. gesammt. Therap.*, September, 1900) speaks of ichthoform as being to a high degree bactericidal, antifermentative and deodorizing and therefore considers it well adapted to replace iodoform, especially since it lacks the odor and the poisonous qualities of the latter. Internally it is of use in all conditions of the digestive tract

depending on atony or altered secretions and also in intestinal tuberculosis. On wounds it stimulates granulations in a remarkable way, in addition to exerting an antiseptic action which exceeds that of iodoform. An advantage not to be disregarded lies in the fact that neither kidneys nor nervous system are in the least irritated even after continued use.

Cause of Migraine.—J. Deye (*Klin. therap. Woch.*, September 2, 1900) has examined many cadavers with the view to finding some anatomical peculiarity to explain the symptoms of disturbed function of the ophthalmic nerve in migraine, and advances the following novel explanation which conclusively disproves the presence of a true paralysis: The ophthalmic nerve stands in intimate relation with the carotid artery in the cavernous sinus, while between the sinuses of both sides is placed the hypophysis, the lateral borders of which are in close contact with cavernous tissue. In case of cerebral congestion from intense mental activity or other cause, the cavernous tissue will tend to swell with consequent compression of the afferent vessels of the hypophysis. This in turn will lead to enlargement of the hypophysis, and, in case the space between the two cavernous sinuses should be narrow, compression of the ophthalmic nerve between carotid and dura. Anything depleting the brain of blood, such as sleep, will diminish the pressure and hence relieve the migraine. The author has found an abnormally narrow intercavernous space in a certain percentage which coincided with the number of migraine cases among the population.

Spinal Anesthesia.—A. Bier (*Münch. med. Woch.*, September 4, 1900) has used spinal injections of cocaine to replace general anesthesia for several months, but finds that untoward after-effects occurred rather too frequently to be compatible with the general use of this method. The vomiting, headache, vertigo and weakness, which often persisted for days, he is however inclined to ascribe not to the cocaine but to the efflux of cerebrospinal liquor which occurs, and, in some cases, to idiosyncrasy. The indiscriminate use of large doses is earnestly warned against since extended experiments on animals have still to be made to determine exactly the limits of safety. To make spinal anesthesia an ideal narcosis, cocaine should not manifest more poisonous symptoms than if injected anywhere else—a state of affairs which, with the method at present employed, does not as yet obtain; it should be as efficient for operations on the upper as on the lower part of the body; and, lastly, experiments should be made with other drugs with a view to replacing cocaine.

Hour-Glass Stomach.—F. S. Watson (*Annals of Surgery*, July, 1900) gives a *résumé* of this condition which presents itself in two forms, the congenital and the acquired. The former is characterized by the symmetrical contour of the constriction and by the absence of pathological processes immediately connected with it, the latter being the most conclusive, and as it seems to the writer, the only positive evidence of its congenital nature. The acquired form is characterized by the presence of pathological processes in immediate relation with the construction; these are in a large majority of cases the cicatrices of former gastric ulcers, or the adhesions originating from these conditions and attaching the stomach to some adjacent structure; less frequently the hour-glass deformity is produced by adhesions originating from inflammatory processes outside the stomach and involving it secondarily; in a few instances, cancerous disease of a neighboring organ has brought it about, and the contraction has been caused by the cicatricial deposit following the ingestion of caustic chemicals. The constriction usually is located at the middle of the stomach, or at the junction of the middle and lower thirds. This condition is more frequent in men than in women and usually occurs between the thirtieth and sixtieth year. The symptoms in general are the same as those seen in connection with benign stenosis of the pylorus; in the congenital form, the symptoms may be slight or not appreciable until later on in life, usually in advanced age. The following facts may help us in differentiating this condition from stenosis of the pylorus. If fluid be injected into the stomach, instead of returning through the irrigating tube, it may seem suddenly to disappear, as though it had flowed through a large hole; again, when the stomach has apparently been washed quite clean, there may suddenly be returned through the tube a quantity of partially digested food, presumably food regurgitated from the second half of the stomach back into the first; or, when fluid is injected into the stomach, the left side of the epigastrium may become distended, and then a moment or two later, this swelling may subside, while at the same moment there will appear an enlargement of the right side of the epigastrium, these changes being accompanied by a gurgling sound such as is made by air and liquid being forced through a narrow channel; finally, we may note a persistence of the splashing sound on succussion after lavage. Vomiting is the most constant sign, almost always following at once or very soon after taking food. Loss of weight is almost invariable; hematemesis is not likely to occur unless gastric ulcer has previously existed; free hydrochloric acid is probably present in most cases; gastric pain is a frequent symptom, often severe, and almost always provoked by food. The treatment of this hour-glass condition of the stomach is purely surgical; gastro-anastomosis being the most serviceable, allowing large communicating openings between the two portions of the stomach to be made, thereby avoiding the formation of cicatricial areas, utilizing the digestive and motor functions of the pyloric half, and preserving the natural outlet of the stomach undisturbed.

THERAPEUTIC HINTS.

Removal of the Uvula.—Lennox Browne (*Jour. of Laryngology*) says that not only does a long, relaxed uvula predispose to pulmonary disease, but it may be the direct inciter of the chest symptoms. He instances the case of a physician, who, with irritable cough, constant pain in the left infrascapular region, and loss of flesh and strength, was pronounced a consumptive by two eminent diagnosticians. Following the removal of his uvula he quickly regained his health, and for twenty-five years carried on an active practice without any sign of diseased lungs.

Acne.—In this condition, in spite of the greasiness of the skin, F. H. Barendt (*Liverpool Medico-Chir. Jour.*, No. 38) stops the use of soap and water. Instead he orders hot oil as a wash on the principle that this easily dissolves solid fatty matter. By this means comedones are dissolved and the skin softened in preparation for the application of sulphur. Lanolin, as it approximates the composition of human fat, is a valuable base; it should, however, always be mixed with oil, vaseline, or benzoated lard. In prescribing an ointment for acne, give explicit directions and set a time during which it is to be rubbed in.

Feeding in Gastric Ulcer.—Rest in bed demands less food and less digestive work. The diet should be fluid with or without completely digestible solids in fine subdivision, and it should be neither very cold nor very hot. Milk, if well borne, is the main source of nourishment. It is unirritating, combines rapidly the secreted hydrochloric acid, does not excite much secretion, and is easily evacuated by the stomach. Not more than two quarts should be taken in a day, and one glass should constitute a feeding. It should be slowly sipped at first, and, to avoid accumulation and distention of the stomach, the intervals should be from two to four hours, that is, long enough for the stomach to empty itself. One or two tablespoonfuls of milk-sugar may be added to the first glass each morning as a nutritive and laxative. After the pain and vomiting subside, a small quantity of a well-cooked wheat preparation may be added twice a day, and later meat broth with a beaten egg stirred in may replace one or more of the milk feedings. Tender meats, cereals, and butter are next added, then vegetables. The patient should be kept for several months on a mixed, non-irritating diet, and must for a long time avoid acid fruits, alcoholic drinks, rich foods, condiments, and sweets. Rectal feeding may well supplement the milk diet, and must be used exclusively if the stomach is intolerant or there is hemorrhage or a fresh perforation.—(*Van Valzah and Nisbet in "Diseases of the Stomach."*)

Chronic Constipation.—One of A. L. Loomis' favorite prescriptions was:

℞ Ext. Nuc. Vomicæ..... gr. xij
Ext. Aloes .....
Ext. Colchici Acetic.....
Calomel .....
Ipecac ..... aa gr.xx.

M. et div. in pil. No. XX. Sig. One at night.

Cholecystitis in Typhoid.—Da Costa treated this by calomel in small doses frequently repeated, ice locally or poultices, whichever is most agreeable to the patient, counterirritation by turpentine stupes or iodine, morphine to relieve the pain, and circulatory stimulants as need arises.

Bronchitis in Children.—Solis-Cohen uses couterirritation to the chest, inhalation of creosote or formalin, calomel, gr. ¼ when needed, and:

℞ Tinct. Aconiti..... ♏ i
Tinct. Opii Camph..... ♏ ij
Vin. Ipecac ..... ♏ v.

Sig. Every two hours. He says that alcohol or quinine do little, if any, good.

Facial Neuralgia.

℞ Tincture of Aconite Root..... ℥iv
Chloroform ..... ℥iv
Alcohol ..... ℥iv
Oil Peppermint..... ℥i.

M. Sig. Apply with a camel's hair brush.

Ipecac in Atonic Dyspepsia.

℞ Tr. Physostigma ..... 6 parts
Tr. Ipecac ..... 1 part
Tr. Star Anise..... parts q. s.

M. Sig. Six drops in a glass of vichy, after each meal.

℞ Tincture of Ipecac.....
Tincture of Calumba.....
Tincture of Gentian ..... aa.

M. S. From fifteen to thirty drops after each meal, in two portions from half an hour to an hour apart, in a little water.—*Mathieu, Lyon Médical.*

Facial Erysipelas.

℞ Carbolic Acid ..... ℥i
Tinct. Iodine ..... ℥i
Alcohol ..... ℥i
Oil Turpentine ..... ℥ij
Glycerin ..... ℥iij.

The lesions to be painted with this every two hours, and covered with gauze.—*La Presse Médicale.*

Copper Phosphate in Tuberculosis and Chlorosis.

℞ Neutral Acetate of Copper.... gr. 1.6
Crystallized Sodium Phosphate. gr. 5.6

Licorice and glycerin, q. s. to make one pill.

Two pills to be taken daily.—*Le Progrès Médical.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence, or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4 00
SINGLE COPIES	10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	7 50

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK,
AND NOS. 706, 708, & 710 SANSOM ST., PHILADELPHIA.

SATURDAY, SEPTEMBER 22, 1900.

THE ACUTE INFECTIOUS ORGANISMS.

RECENT investigations are tending to alter our ideas relative to the modes of infection in those diseases which are caused by micro-organisms. It was assumed that any given micro-organism produced a disease which ran a typical course and induced similar pathologic changes in different individuals. The important fact that it is not necessary to account for great variations in a symptom-complex by assuming a mixed infection, but that one and the same organism is capable of assuming a double rôle, at least, is being more clearly recognized.

We present a study in this week's MEDICAL NEWS by Dr. Wasdin in which he shows that many organisms, especially those of yellow fever and of the plague, exhibit this dual action.

The study of yellow fever in man and in animals naturally produced led him to investigate the prevalence of several types of cases encountered in this as well as in many of these infections. He concludes from the facts gained from these experiences that the variations in the types of disease processes depend on the development of two inherent qualities in these organisms, those of toxicity and septicity. The former quality when developed produces the toxemias, the latter the septicemias. Intermediate between a perfect toxemia and a perfect septicemia, the latter unknown in these acute infections in man, there may exist a mixture of these conditions, sepsis always being secondary to a more or less accentuated primary intoxication.

Applying the facts derived from the study of this one acute epidemic infection, yellow fever, to the other infections, in the light of recent experimental knowledge, he arrives at the formulation of a law which governs the production of these different types, heretofore known, in yellow fever, as the *ephemeral, grave* and *siderante* types of the disease, and shows that these three types must exist, more or less clearly marked, in *all* the infectious diseases, being especially marked in those of epidemic character.

The expression of the belief that all the acute infections may be contracted from the respiration of the specific organisms is not startling, since this has been recognized as possible in the case of all of them with the exception of typhoid fever, plague and tetanus.

The recognition of the facts affirmed by the writer, that all cases of plague, not due to artificial infection by means of wounds of the integument, are primarily respiratory, and that the three types of plague are to be expected, the ephemeral, possibly ambulating cases, the grave or classic bubonic type, and the siderante type, must materially assist efforts made to limit any outbreak of this dread disease, a possibility not so remote in view of its rapid extension to this continent. The diagnostic recognition of the ephemeral and foudroyante cases of plague will present greater difficulties than that of the classic type, with buboes, still too much stress cannot be laid upon the importance of such recognition, for these cases are relatively of greater sanitary importance than those of the well-marked type. Regulations directed to the detection of plague at quarantine should include careful inquiry concerning all diseases of the respiratory tract and especially of any cases of "sudden death" or death after short illness. Ill-defined pneumonia and bronchitis should invite particular attention. The presence of glandular enlargements, buboes of considerable size, may be encountered, the patients offering no other evidence of disease. Careful bacteriological examination of the sputum in these suspected cases should be made, both by the ordinary methods and by mixing the secretion, preferably carefully dried and powdered, with the food or in the bedding of white mice, which are so susceptible to the acute infections. Of all the organisms closely resem-

bling bacillus pestis, there is not one that will naturally infect these animals. Such natural infection will corroborate results obtained by the practice of the ordinary and routine methods of artificial infection of animals, and will remove much of the skepticism, both lay and professional, as to the presence of the disease.

The expression advanced in this article, that typhoid fever belongs in this group of respiratory diseases and that the three cardinal types must be encountered also, is one of importance. The experimental work of Sanarelli was productive of the conclusion by that writer that the intestinal canal was not solely involved in typhoid fever, although this infection has been produced by mixing the bacillus typhosus in the food of rodents. The writer holds that the rapidly increasing literature of such cases must accentuate the statement that most cases of typhoid fever are primarily respiratory in origin, and he attracts attention to the futility of endeavoring in any community to entirely suppress the disease by the provision of filtered drinking-water only, while the supply for civic and household purposes remains contaminated, the use of which means the dissemination of the infective germ by dust-carriage in the streets and within the house. All water-supplies should be filtered, but more attention should be paid to that destined to be sprinkled on streets and lawns and for laundry and other household uses.

The detection of ephemeral cases of typhoid must also be extremely difficult and is of secondary importance only to the detection of such cases of plague. The prohibition of the unclean habit of expectorating on the streets and in public places, should be enforced in the interest of the public against plague and typhoid fever, as well as against pneumonia and tuberculosis. All of these acute infections may be respiratory diseases, therefore we should protect the vulnerable tissues of the lungs against the entrance of their specific organisms.

HOSPITALS AND LAY MANAGERS.

THE troubles in the Board of Governors of the Hospital for the Paralyzed and Epileptic in England seem hardly worthy of so dignified a group of men. Their excuses and petty reasons for not allowing representatives of the medical staff confer with them on the subject of hospital management reminds us strongly of the attitude of a worthy board of fashionable women who "managed" an annual garden-party and incidentally a small hospital in a philanthropic city hard by. These good women would permit no medical representative upon their board and no wife or female relative of any of the staff among their number, "for fear of unpleasantness which might arise from possible criticism of the staff;" and yet the urgent petitions of the staff for the purchase of an efficient disinfectant were completely ignored at successive meetings, owing to the pressure of business anent the garden-party. When the board did occasionally give time to the discussion of the medical side of their charity it was to deplore, in the same tones with which they discussed their servants, the tendency of the staff to retire every twelve months.

That a medical staff composed of some of the ablest physicians in England should be subjected to like illogical exclusion from the hospital management and that the dignified governors of the hospital should place themselves in the position parodied by the feminine board referred to seems inexplicable to our minds.

The very existence of a hospital implies the willingness of good-hearted people to give their money and able physicians to give their services. The more eminent the physician the less time he has and no one would dream of asking him to render other than medical services to the hospital. The lay managers or directors of the board assume, for purely philanthropic purposes, the burden of the details of the management; but it is taken for granted that both sets of individuals are working for the same altruistic end, the good of the sick man. No one will for a moment deny that the physicians are the power by which this end is attained and that the lay managers are their assistants and cooperators. In other words, the principles of sanitation, the régime of diet, the methods of treatment, the manner of nursing must of necessity emanate from the physicians who by virtue of their busy lives must leave the details to be worked out under the direction of laymen.

This naturally puts the directors in positions of authority on all questions of routine management, and might with narrow-minded men lead to a usurpation of power that would seriously militate against the good of the hospital.

Most of the larger and best managed hospitals in America vest executive power in the medical staff, either in the form of a medical committee, or a representative, or the appointment of a medical man as chief executive officer of the hospital.

This is no concession to their claims, but is merely to save the other physicians time and energy.

That eminent physicians who are carrying on advanced scientific treatment should be obliged to beg for a voice in the management of the work of which they are the very impulse seems laughable. Whether or not the diet of the hospital in question was sufficient or the management satisfactory, the principle remains that the medical man must be free to advise and to cooperate with the directors of the hospital, and they in turn must be sufficiently in touch with the medical men who are serving the cause to be able to choose those with whom they can openly discuss all medical affairs of the hospital without hurting their feelings.

BACILLUS TYPHOSUS AND SEWAGE-DISPOSAL.

FOR several years past the modern system of sewage-disposal has been by septic tanks and bacterial filters made of coke or gravel. It was at first held that this modern improvement over chemical or land treatment of sewage effectually did away with all or most of the pathogenic bacteria. Sewage products treated by this plan were allowed to flow from the bacterial beds into rivers, with the idea that all infection was effectually disposed of. The persistence of epidemics of dysentery and typhoid led many to doubt whether this plan of sewage-disposal was as effective as was at first thought. A series of experiments was carried out in 1894 by Andrewes and Laws on the vitality of the bacillus typhosus in crude sewage before undergoing treatment for purification. Crude sewage was found to be not only an unfavorable medium for the typhoid bacillus, but certain sewage bacteria were directly prejudical to the growth of the typhoid germ. Nevertheless this was not as reassuring as it might have been, for it was discovered that, while the raw sewage was not a good growing medium, the typhoid germ maintained life for days and even weeks, and thus gave the bacilli excellent opportunity to pass beyond the sewage system, and develop in a more encouraging medium.

A little later in the same year Klein proved that the typhoid bacillus not only lived for weeks, but that the nitrate sewage, the kind most favorable for bacterial filter disposal, permits the greatest longevity to typhoid bacteria. In this light the coke-beds are storehouses, and we must infer that no bacterial sewage-disposal holds the sewage long enough to terminate the life of the bacillus typhoid coming to it in crude sewage, hence the explanation of the contagioned water supplies near or below the river discharge from large towns having a typhoid epidemic. To-day many English authorities go as far as to say that crude sewage is probably but little worse than river discharge from sewage-beds.

In a recent discussion of the whole matter in question, at the annual meeting of the British Medical Association (*Brit. Med. Jour.*, August 18, 1900), Dr. Houston detailed a series of observations that he carried out at the instigation of the London Common Council, on coke-bed filters at Crossness. On account of the extreme difficulty and impractibility of isolating the bacillus typhosus, he took the more common and more abundant bacillus coli and bacillus enteritidis sporogenes, one aerobic and the other anaerobic. He found that the so-called biological processes at work in the coke-bed had no appreciable effect on the reduction of the number of these bacilli, compared with the quantity found in crude sewage.

We therefore infer that the bacillus typhosus which is more resistant to the bacterial filter escapes destruction, thus we have striking proof that from an epidemiological point of view the present sewage-disposal by septic tank and bacterial beds is fully as dangerous as the old cesspool, the overflow and leakage of which have been responsible in the past for such frightful mortality. In closing the discussion, Dr. Houston held out some hope that the danger of contaminating river water by the effluent from bacteria beds would be considerably lessened if the discharge was passed over land or sand-beds similar to that done for the purification of drinking water. Unless sewage can be disposed of in the future in such a manner as to become inocuous, we must continue to expect epidemics of typhoid and dysentery wherever the possibility of contaminating the water-supply may exist. The present septic tanks and bacterial filtration-sewage system must be set aside or modified, so that it will cease being a menace to public health by arousing false hopes of security.

The Medical Center of America.—Dr. I. N. Love, editor of the *Medical Mirror*, removed to New York, as he terms it, "the medical center of America," September 15, 1900. The *Mirror* is to be published in St. Louis as formerly.

ECHOES AND NEWS.

NEW YORK.

Obituary.—Dr. Frank C. Merriam of 136 West Eleventh Street died September 16th, at Waterford, Conn. He was forty-six years old and a graduate of the University Medical College, class of 1880. He leaves a wife and three small children.

Telephone Burglar.—This species of malefactor is abroad. Under the guise of a kit of tools and the tale of repairs to the wire, he obtains entrance to houses and then leisurely ransacks them. Make him show his badge and if not then certain get his name, call up central and see if his name and number are authentic.

Charitable Bequests.—By the will of George D. Sweetser the following institutions are benefited: Home for Incurables, Woman's Hospital, House of Rest for Consumptives in Tremont, New York Infant Asylum, New York Society for the Relief of the Ruptured and Crippled, and the Skin and Cancer Hospital.

Pink Eye and the Baths.—Dr. Cary of the New York Eye and Ear Infirmary has decided that the public baths along the rivers' front are responsible for an epidemic of pink eye similar to the one which broke out in Brooklyn two weeks ago from the same cause. One hundred and ninety-six cases of the disorder were treated at the infirmary in one day.

Building at Columbia.—After several years of effort, the alumni of the several schools of Columbia University have succeeded in raising the necessary $125,000 for the erection of the second story of the University Hall. Work was begun last week and the building operations will be hastened, as it is the desire of the graduate associations to hold their annual reunion exercises next June in the memorial chamber of the new story.

Free Milk.—The free distribution of pasteurized milk, which has been carried on since July 17th by the Bureau of Charities in cooperation with the health authorities of the Borough of Brooklyn, was discontinued Monday. For nine weeks, during which time the plant has been in operation under the arch of the East River bridge on Main Street, there has been an average daily distribution of between 1600 and 1700 six-ounce bottles of pasteurized milk, prepared especially for children. Notwithstanding the unusually hot weather, the statistics in the office of the Board of Health show that the rate of infant-mortality has been lower than for the same period during the five years preceding, and some of this result is attributed to the distribution of the pasteurized milk. According to the official figures, the deaths among children under five years during three summer months of several years have been:

	From diarrheal diseases.	From all causes.
1895 (no milk)	1212	3206
1896 (no milk)	1197	3307
1897	990	2930
1898 (no milk)	1122	3092
1899	993	2909
1900	931	2858

If the milk could have been more widely distributed, the good results would doubtless have been more marked. Some of the thickly populated portions of the city were not reached at all. It is to be hoped that another summer the work may be conducted on a larger scale. All who are willing to help in defraying the unpaid expenses of the work for the past summer are requested to send their contributions to the central office of the bureau, No. 69 Schermerhorn Street.

Famous Patient Dies in Bellevue.—"Tommie" died in Bellevue Hospital September 16th of Bright's disease. He was well known at Bellevue for having undergone an operation by which his finger was grafted to his face for a nose, that organ having been eaten away by a tuberculous ulcer. The operation was performed by Drs. Lewis A. Sayre and Thomas Sabine of the College of Physicians and Surgeons, after others had agreed that the man's case was hopeless.

PHILADELPHIA.

Death from Broken Back.—Edward Knouff, a fireman, died recently at the German Hospital from injuries received in April, 1897. His back was broken by the fall of a stone. The case attracted much attention at the time.

Death from Circumcision.—A fifteen-day-old infant died from hemorrhage following circumcision by a rabbi last week. A physician was called after unsuccessful efforts to check the hemorrhage had been made for two hours. The child died five hours after the physician was called to see the case.

Pennsylvania Hospital.—A new entrance building is being constructed at a cost of $60,000. The kitchen in the basement is to be equipped with an electric air-blower and fan to remove the odor of the cooking.

Dr. Linnaeus A. Smith.—The death of this physician occurred September 12th. He was well known from his treatment of skin diseases by homeopathic methods. Some years ago he removed to Jamaica, after evolving a system of treatment to arrest the progress of leprosy. Jaundice contracted there led to his death.

Formaldehyde in Milk.—A milk dealer in Upper Darby has been held for a hearing on the charge of selling milk containing formaldehyde. The use of the drug is said to be quite prevalent among dealers in order to save ice.

Physician Robbed.—Dr. W. H. Klopp found upon returning to the city from his vacation that thieves had taken furniture, clothing, etc., to the value of $700 from his house during his absence.

Beulah Orphanage Case.—The Grand Jury has indicted Sheets and Sollenberger, religious enthusiasts, for the murder of a seven-months-old infant last July. The men conducted the "Beulah Orphanage" on faith-cure principles. A physician was called to the case too late, but the keepers' "consciences pricked them for faltering in faith" and they decided never to call another physician.

German Hospital.—The ambulance of this hospital was recently hindered by a teamster refusing to give the right of way. At a hearing the teamster was fined $5.00. Upon his statement that other teams prevented his turning out the fine was remitted and he was discharged after a severe reprimand by the magistrate.

Free Hospital for Poor Consumptives.—This organization is still endeavoring to secure a building of its own. It now has under its care 31 patients distributed among four hospitals in the city and one in the Adirondacks. During the first six months of this year 116 patients were cared for at an expense of $4600. The general hospitals are practically closing their doors to consumptives, even those for whom they are paid not being desired.

Sanitarium Season Ended.—The Children's Sanitarium at Red Bank has closed the most successful season in its history. The admissions for the 73 days were 180,670. The institution comprises a hospital, soup-house, infants' bath-house, swimming pools, etc.

The Galveston Relief Fund.—This fund now amounts to over $45,000 for the Permanent Relief Committee in addition to other funds which have been started by individuals and firms. Benefits are to be given by several theaters and two train-loads of supplies have been sent. Dr. J. V. Shoemaker in behalf of the Philadelphia and Medico-Chirurgical Hospitals offered the services of 25 nurses to be sent at once if they were needed.

Greek Commander Offended.—The captain of the Greek warship "Miaulis," now in port here, was greatly incensed by the quarantine physician as the vessel came up the Delaware. He states that contrary to the laws of peaceful nations the physician would not accept the count of the crew as given him, but insisted on lining them up and counting them himself. It is stated that the authority in question is a new incumbent.

CHICAGO.

Post-Graduate Medical School.—The capital stock of this institution has been increased from $20,000 to $40,000.

Mount Sinai Hospital.—A hospital bearing this name has been incorporated by Drs. Rudolph Menn, George M. Silverberg, and Adolphus E. Berting.

Boulevard Sanitarium.—An institution of this name has been incorporated with a capital stock of $2500 by Drs. Harry Jay and Wellington P. Stewart, and W. Clark Allen.

Dr. Ochsner.—Dr. A. J. Ochsner has been appointed Professor of Clinical Surgery in the Medical Department of the University of Illinois (Chicago College of Physicians and Surgeons).

Health Department of Chicago.—This department has been awarded one of the grand prizes at the Paris Exposition for its exhibit of blanks, charts and other forms in use at the office of the department.

Control of Drainage Canal.—Controlling works at the junction of the river and the sanitary canal are favored by the Health Department, which deems such works necessary. At the present time it requires from eight to twelve hours to shut the gates at Lockport and stop the current, and during this time the garbage and sewage are prevented from taking their natural course through the canal, and the health of the city is thereby endangered.

Tribute to Dr. Schmidt.—The Board of Trustees of Michael Reese Hospital has adopted resolutions upon the death of Dr. Ernst Schmidt, who served that institution with great efficiency for the period of twenty years.

Mechanism of Dislocations of Hip.—Dr. Oscar H. Allis of Philadelphia, as the invited guest of the Chicago Surgical Society, will give a demonstration (upon the cadaver) of the mechanism of dislocations of the hip and their reduction, by manual effort and without previous tenotomy of the capsule, in the amphitheater of Rush Medical College at 8 P. M., October 5th. The annual dinner, at which Dr. Allis will be the honored guest of the Society, will precede the demonstration.

Cremation.—Popular prejudice against cremation is gradually decreasing in Chicago. Evidence of this is not lacking. The people are becoming more liberal on the subject and are getting over the idea of horror that used generally to attach to incineration. Less than fifteen years ago there were three crematories in the United States and they were scarcely used. At present there are nearly fifty scattered throughout the country, and the number is increasing every year. They are in the larger centers of population, where the demand is greater and the facilities for successful operation are better. The crematory at one of the cemeteries in this city exemplifies in a great measure how fast the prejudice is falling away. Since the erection of the plant in December, 1893, the records show that 616 bodies have been incinerated.

Chicago in Professional Education.—Statistics show that Chicago is fast becoming the professional school center of America. There are twenty medical colleges alone. There is no reason why Chicago should not lead in this respect. A medical college needs a large city to supply patients for the training of students, and the hospitals furnish such an opportunity and make possible the study of a greater variety of diseases. This is the reason why London, Berlin, Paris, and Vienna are great medical centers. The large cities also draw to them the greatest physicians, as it is there that the practitioners can earn the largest fees, and these men are glad to devote some of their time to giving lectures to students. In the same way the methods of legal procedure can best be learned in a large city. With such metropolitan advantages, together with the fact that Chicago is so near the center of population of the country, there is every reason to expect that its usefulness in this respect will increase constantly, and the city will become the American center for legal and medical instruction.

Papyrus Ebers.—For twenty-three hundred years Hippocrates of Kos has been known to the world as the "Father of Medicine." This distinction, however, has been wrested from the ancient Greek by the discovery and translation of an early Egyptian papyrus treating of the subject of medicine, with date so remote as almost to place Hippocrates within the ranks of modern physicians. English medical literature is about to be enriched by the translation of this papyrus, generally admitted by Egyptologists to be the oldest book devoted to the science of medicine extant. The work is known to scientists as the Papyrus Ebers and is supposed to have been written during the reign of Bicheres, a king of the fourth dynasty, 4688 to 4666 B. C. Thus the original document is nearly 7000 years old and it contains the written genesis of the art of healing. Although brought to light in 1873, no complete translation of the papyrus Ebers has been made. The document is carefully preserved in the library of the University of Leipsic, and it remained for a Chicago man to make the first English and the only complete translation. The work was undertaken about a year ago by Dr. Carl H. von Klein of Chicago, a well-known student of the Oriental languages and the author of a number of medical works, among them a book on the "Medicine of the Talmud." His English translation of the papyrus Ebers, a volume of several hundred pages, will soon be ready for the press.

GENERAL.

The Plague at Glasgow.—There has been a distinct increase in the number of plague cases at Glasgow. Five were discovered in one day. The total now is about 25.

Women Doctors in Austria.—An imperial decree issued September 15th admits women to practice as physicians and chemists on the same conditions as men.

Obituary.—Dr. Dennis Dowling Mulcahey died September 12th at his home in Newark after an illness of a few days. He was born in Tipperary, Ireland, in 1848, and studied medicine before coming to this country.

Galveston Reports.—The State Health Officer, Dr. Blunt, believes that there is now no danger of an epidemic. The city Board of Health held a meeting this week and adopted a resolution voicing the same views. Emergency hospitals have been established in every ward for the treatment of the sick and wounded. The Ursulin Convent has been converted into a great general hospital for the reception and care of patients who are seriously ill, with a full corps of physicians and trained nurses. All public and private hospitals are filled to their capacity with sufferers. Medical supplies are still much needed.

Harvard Items.—Professor William James is again at the Nauheim baths in the hope of further regaining his health. It is not decided whether he will pass the coming winter abroad or in Cambridge.—Professor W. T. Porter, of the Department of Physiology, will be abroad during the next school year. The success of the new practical course in physiology which he has organized has been pronounced.

German Naturalists and Physicians.—The seventy-second annual meeting of the Congress of German Naturalists and Medical Men took place this week at Aix-la-Chapelle, September 16th-22d. Among the papers read were "Development of Scientific Medicine," Prof. J. H. Van t'Hoff of Berlin; "The Neuron in Anatomy and Physiology," Prof. Verworn of Jena; "The Neuron Doctrine from the Pathologic and Clinical Standpoint," Dr. Nissl of Heidelberg; "On the Development of Biology," Prof. Hertwig of Berlin; "On the Development of Pathology," Prof. Chiari of Prague.

Tri-State Medical Society of Alabama, Georgia and Tennessee.—The twelfth annual meeting of the Tri-State Medical Society will be held in Chattanooga Thursday, Friday and Saturday, October 11, 12 and 13, 1900, during the reunion of the Army of the Cumberland and the Spanish-American War Veterans. A fare of one fare for the round trip will doubtless be given the latter from all parts of the country. The South Eastern Passenger Association has already given this rate and the other associations will take up the matter shortly. A large attendance is expected and an unusually good program is in prospect. All desiring to present papers should send title to the secretary, Dr. Frank Trester Smith, Chattanooga.

Medical College Crippled.—The storm caused a loss of probably $70,000 to the buildings of the

State University in Galveston. The medical branch of the institute was situated there. The Brackenridge Building which was recently erected at a cost of $45,000, was wrecked, and the other buildings were greatly damaged, all of them being unroofed. The session was to have opened on September 26th. A meeting of the regents was held at Galveston on Monday and steps taken to accommodate the students in some manner. If it is found that they cannot be accommodated at Galveston they will probably get room in the main buildings of the university at Austin temporarily.

Obituary.—Dr. Hunter McGuire, who was chief surgeon of Stonewall Jackson's army during the war, and one of the most eminent surgeons in the South, died at Richmond, Va., September 19, 1900. Dr. McGuire was the President of the American Society of Surgeons. At the outbreak of the war he was attending the University of Medicine of Philadelphia. He left at once and came to Richmond and enlisted as a private in the Confederate army. Before long he was promoted to be Medical Director of the Second Army Corps. In 1865 he was elected professor of the Virginia Medical College, holding the chair until 1880. He organized St. Luke's Home for the Sick, in Richmond. In the International Medical College of 1876 he was elected Vice-President. The University of North Carolina conferred upon him the degree of LL.D. He was the author of several medical works and of an account of the wounding and death of Stonewall Jackson.

Pennsylvania State Medical Society.—The fiftieth annual meeting of the State Medical Society met this week at Wilkes-Barre, September 18, 19, 20th. The attendance was large, over 300 members registering by Thursday morning. The social features were very pleasant, the Luzerne County Medical Society proving itself a most thoughtful host. The scientific program was of high order. We will present the proceedings in full in next week's issue of the MEDICAL NEWS. The following officers were elected for the ensuing year: President, Dr. Thos. D. Davis of Pittsburg; 1st Vice-President, Dr. W. B. Ulrich of Chester; 2d Vice-President, Dr. L. H. Taylor of Wilkes-Barre; 3d Vice-President, Dr. A. A. Eshner of Philadelphia; 4th Vice-President, Dr. M. L. Kirk; Secretary, Dr. C. L. Stevens of Athens; Assistant Secretary, Dr. W. L. Pyle of Philadelphia; Treasurer, Dr. G. B. Dunmire of Philadelphia. The place of meeting will be Philadelphia; the time, the third Tuesday in September, 1901.

Vaccination and Malpractice.—A physician employed by the Board of Health of New Bedford, Mass., as a public vaccinator has recently been subjected to an annoying criminal prosecution for vaccinating a child five months old. The charge was assault and battery. It appeared that the defendant, while engaged in the work of vaccinating in a tenement district, visited the home of a Mrs. B., and ascertained that her six-year-old boy had not been vaccinated. He thereupon vaccinated the lad without any objection on the part of the mother, who, however, remarked to him at the time, "You won't have to vaccinate my baby, will you?" The doctor answered that he thought he would, and in response to further objections by the mother told her that she would have to settle them with the Board of Health. He then proceeded to vaccinate the baby. It was proved without contradiction that the mother, notwithstanding her remonstrances, bared the infant's arm for the operation; and the court acquitted the defendant on this ground, holding that it was convincing evidence that the complainant, although undoubtedly reluctant, had finally consented that the child should be vaccinated.

Lodge Doctor.—A medical controversy, growing out of the willingness of certain doctors to treat the members of fraternal and benevolent societies at reduced rates, is about to be carried into the courts of Massachusetts at Springfield. The Hampden County Medical Association has expressed its disapproval of this practice, insisting that no special arrangements for charging less than the ordinary fees should be made with these organizations, but the societies seem to have found no difficulty in securing the services of other physicians who agreed to treat their members for a stipulated sum per annum. Thus far there was no room for litigation. It appears, however, that a patient who was sent by one of these so-called contract physicians to the Mercy Hospital in Springfield was refused admission to that institution unless the doctor in attendance withdrew from the case, which he finally consented to do for the sake of the patient, who required treatment which could be afforded only at a hospital. A suit will now be brought to ascertain whether the hospital staff could lawfully take this action under its charter, which provides that all patients shall be treated there who are brought to the institution by reputable physicians.

No Hydrophobia in England.—The State Department has received from Lord Pauncefote, the British Ambassador, a memorandum as to the importation of dogs into Great Britain. By enforcing the strictest regulation in regard to muzzling and the importation of dogs the disease of rabies in dogs and hydrophobia in man has been practically stamped out in England. Under the present ruling of the Board of Agriculture licenses must be obtained for the landing of dogs in Great Britain and a penalty of £20 and the possible seizure of the dog is enforced when a license is not obtained. Masters of vessels are liable to prosecution if dogs are landed illegally, and cannot accept dogs for shipment to Great Britain unless the license is shown at the port of embarkation. Imported dogs are isolated

for from four to six months and are moved about only upon license from the board. When taken out for exercise they must be properly muzzled and in charge of competent persons. The memorandum says: "The experience of the board has clearly shown that the frequent movement of pet dogs to and from the Continent involves this country in serious danger, inasmuch as a pet dog may become infected with rabies without the knowledge and despite the utmost care on the part of its owner. It is therefore a matter of great importance to owners of dogs in Great Britain that dogs from abroad should only be admitted in instances where it has been satisfactorily established that some useful purpose will be served by their admission, or where a pet dog would otherwise be separated from its owner for a prolonged period. Pet dogs should not be taken abroad and thus exposed to the risk of infection, excepting cases of real necessity."

CORRESPONDENCE.

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, September 8, 1900.

THE SOUTH AFRICAN HOSPITAL SCANDAL—ACCUSATION BY MRS. RICHARD CHAMBERLAIN—DISPATCH OF A COMMISSION TO SOUTH AFRICA TO INVESTIGATE THE NATURE AND PREVENTION OF THE EPIDEMIC OF TYPHOID FEVER AND DYSENTERY IN THE ARMY—RESULTS OF THE VACCINATION ACT ABOLISHING COMPULSION—NO DIMINUTION IN VACCINATIONS—IRISH POPULATION STATISTICS.

PUBLIC attention is still riveted on what the lay press call the "War Hospital Scandal." The latest contributions of importance are the statements of Mrs. Richard Chamberlain, sister-in-law of the Colonial Secretary, who went out early in the campaign and nursed in the hospitals around Cape Town. According to her, "Every word that Mr. Burdett-Coutts said, and much more, is true." The base hospitals at Cape Town, where everything necessary was at hand, and which ought to have been in as good condition as the London hospitals, were worse than the field hospitals. No attempt was made to clean them before they were used, with the result that the patients had to be covered with insect-powder to keep off the vermin. Although the scandalous state of affairs was brought under the notice of the military authorities, they did nothing. The nursing staff was inadequate—one sister to every 175 men for night and day. Yet there were any amount of sisters in Cape Town who had come from Johannesburg and would have been glad to have accepted situations.

The Government has decided to dispatch immediately a commission of experts to South Africa to investigate the nature, cause and prevention of dysentery and typhoid fever which have been so fatal to the soldiers. As usual they are waking up late in the day to a sense of their responsibilities and are learning a little in the dear school of experience. In the House of Commons, when the war was beginning, Sir Walter Foster proposed the appointment of a sanitary commission to assist the military authorities in maintaining the health of the troops, but the Government in its superior wisdom rejected his suggestion. The Commission consists of Dr. W. J. Simpson, Professor of Hygiene in King's College, London; Professor Notter of Netley, and Mayor Bruce. Professor Simpson's career eminently fits him for his appointment. In 1881 he was made medical officer of health for the town of Aberdeen, which appointment he held until 1886, acting also as lecturer on hygiene at the university. He was then appointed medical officer of health for Calcutta. He is the author of several valuable papers on public health matters and visited Egypt during an outbreak of cholera. He prepared a report on his visit for the English Local Government Board. His career in India was attended by considerable success and he is an authority on anticholera inoculation.

The death of Sir William Stokes at Pietermaritzburgh removes from the Dublin profession its most prominent and distinguished surgeon. He was a member of a family famous for generations in medicine and well known also in other branches of science. His father was the celebrated physician, William Stokes, who did such admirable work on the subject of diseases of the chest. His grandfather was Dr. Whitely Stokes, who also filled a prominent position both in the profession and in public life. He was a member of the Society of United Irishmen, but left that body when its method became revolutionary. Wolfe Tone wrote of him he was "the very best man I have ever known." Sir William Stokes has been professor of surgery at the Royal College of Surgeons for nearly thirty years. His method of amputating at the knee-joint—a modification of Gritti's—is known as Stokes' operation. He made many other valuable contributions to surgery and also possessed considerable literary power. Referring to his presidential address on surgery at the meeting of the British Medical Association in 1882, the *Boston Medical and Surgical Journal* said it produced "an unmixed expression of delight and proved him, as a medical orator, scarcely, if at all, second to Sir James Paget." In a city of eloquence he was famous as an after-dinner speaker.

The new Vaccination Act which abolished compulsion has not proved injurious, as was expected. Exemption is granted in the case of the children of parents who declare before a magistrate that they have a conscientious objection to

vaccination. In 1898 previous to the passing of the Act the number of children vaccinated was 500,314; in 1899, after it was passed, 669,349. This increase cannot be explained by an increase in the number of births which were only 5000 more in one year than another. The proportion of successful vaccinations to births has risen from 54.2 to 72.1 per cent. It seems that the disappearance of what many Englishmen regarded as harsh and oppressive measures of compulsion, repeated fines, etc., has diminished the objection to vaccination.

The report of the Irish Registrar General for 1899 illustrates the old story—continued depopulation by emigration. While the natural increase of population—that is to say, excess of births over deaths—was 24,201, the loss by emigration was 41,232, the decrease in population during the year being thus 17,031. With this report some very instructive demographic facts for each of the years from 1880 to 1899 are issued in the form of a chart. In 1880 the marriages were less than 4 per 1000; they are now 5 per 1000. In 1880 the deaths were almost 20 per 1000; they are now only 17.6. But against these figures must be placed the fact that the birth-rate has decreased in the same period from 24.7 per 1000 to less than 23. In 1889 the non-Roman Catholic marriages were 6.06 per 1000 and in 1898, 6.31; the Roman Catholics were 4.09 and 4.53, respectively. Thus the marriage-rate is 2 per 1000 greater amongst other sects than Roman Catholics. The fall in the birth-rate is most remarkable. It shows that the Irish race, proverbially prolific, is involved in the modern tendency to a diminished birth-rate. The emigrants were mostly in the prime of life and went principally to the United States.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

HISTOLOGY OF PLEURITIC EXUDATES—SYNOVITIS OF THE KNEE—DIFFUSE ANEURISM OF THE EXTERNAL ILIAC—ENUCLEATION OF FIBROMATA UTERI—PERMEABILITY OF THE PLEURA TO SODIUM SALICYLATE—HEMORRHAGIC INTESTINAL NECROSIS—PRIMARY PNEUMOCOCCUS PERITONITIS—THE VISCERA IN THEIR RELATION TO POISONS—RECOVERY FROM APHASIA.

WIDAL and RAVAUD at the Société de Biologie, June 30, 1900, said that only the exudates of cancerous pleurisy had often been subjected to careful histological examination in the expectation of finding cancer-cells, while the products of ordinary serofibrinous cases had been neglected. Their conclusions are drawn from fifty-six cases, to the effect that examination of the scattered cells in the fluid is capable of giving valuable pathological and clinical data. By exploratory puncture with a sterile needle several cubic centimeters are withdrawn, defibrinated before or after coagulation, centrifuged, stained after having spread the emulsion upon slides with a platinum loop and not as with blood by means of a glass "spreader." The following seem to be the distinguishing features of the various forms of the disease: (1) Idiopathic pleurisy (still sometimes called "cold" and proved by Landouzy to be practically always tuberculous) has almost exclusively small lymphocytes, mingled often with red cells, appearing usually about the ninth day. It would be instructive to observe the exudate earlier. (2) Pleurisy in the presence of tuberculous caseation and excavation of the lungs presents very few elements even after centrifuging, a few red globules and lymphocytes; more numerous polynuclear cells, old, deformed, degenerated, fragmented nuclei filled with neutrophile granules; also a few altered degenerated mononuclear leucocytes, and some amorphous masses without nuclei, which are commonplaces in all exudates. (3) In the pleurites of cardiac, renal, cancerous or pressure origin we find large exfoliated endothelial cells, red blood-cells, and lymphocytes surrounding them and enabling a diagnosis at once. They may occur single, double or in large sheets, a veritable desquamation. (4) Streptococci pleurisy shows only neutrophile polynuclear cells with deformed nuclei. (5) Pneumococci pleurisy has red cells, lymphocytes, many lymphocytes, many mononuclear cells, chiefly of endothelial origin, some inclosing in the cell-body polynuclear cells. (6) Typhoid pleurisy is always bloody and may have large mononuclear leucocytes. (7) Eosinophile cells were found in a case of tuberculous, of typhoid and of parasitic pleurisy. Thus it may be seen that practical significance attaches to the examination of the exudate in inflammation of these serous membranes.

POTHERAT, at the Société de Chirurgie, July 18, 1900, outlined a case of thickening of the synovial membrane of the knee which simulated movable foreign body. All the typical symptoms of the latter were present and the supposed body was so much in evidence and function, so much limited, that arthrotomy was done. The free exposure of the joint-cavity gave to view a large thickening of the synovia in the deep folds beneath the triceps femoris and two others opposite, beneath the quadriceps femoris. All were easily ablated. Full recovery of function followed. Histologically the growths were tuberculous.

ROUTIER reported a case of diffuse aneurism of the left external iliac. The patient was sixty-four years old, in perfect health up to March, 1900, except for moderate early signs of bladder trouble necessitating the occasional use of the catheter. That month he was attacked by slight pain about the left sacro-iliac joint and a little later by sudden pain in the left groin while on a voyage. A median laparotomy was done, and the tumor, which had given all the signs of aneurism, was found to be such. The external iliac

was ligated as close to its source as safe and the femoral artery high up. Several clots were turned out and hemorrhage controlled by clamps left *in situ*. Recovery was well under way when on the tenth day after the operation trismus followed by death set in, without any local or systemic prodromata. Death was due to tetanus, although the speaker had not seen any cases of it in his hospital or private practice.

TUFFIER said that enucleation of fibromata is a just, conservative procedure, and preferable to hysterectomy for the same trouble. He had collected reports of 560 cases, going to show that the operation had passed the experimental stage. His own experience had been fifteen cases, with one death from septic peritonitis. The abdominal operation in this class of work he considers the best and the technic, although more laborious and tedious than simple removal of the whole organ, is such as to make resort to it usually advisable.

WIDAL, at the Société Médicale des Hôpitaux, July 6, 1900, said that with Ravaud during studies of the histology of the serofibrinous exudates in pleurisy, he was led to experiment as to the permeability of the pleura to sodium salicylate, as was undertaken by Raymond, Tourlet and Castaigne. The author and Ravaud used the drug in doses of 0.30 gram injected first beneath the skin and next into the pleural cavity. It was established that the salicylic acid appears in the urine more rapidly than either methylene blue or iodide of potassium. In the normal individual the elimination occurs completely, on an average in fifteen hours; in some cases in eighteen and even twenty hours. The total excretion oscillates between 0.17 and 0.20 grams. The greatest amount excreted is usually during the first six hours. The two experimental injections (subcutaneous and intrapleural) may be made at very short intervals. The quantity given and voided was weighed very exactly. The permeability of the pleura studied in five case of pneumonic pleurisy the rate and durafollows: In one case of primary tuberculous pleurisy the permeability was decreased; in one case of pneumonic pleurisy the rate and duration were altered, but not the total elimination; in three cases of mechanical pleuritis, cardiac or renal, there was either no change or a slight augmentation in two and slight decrease in one.

CASTAIGNE in the discussion said that he had investigated the permeability of the pleura to sodium salicylate not only from within outward, but from without inward, by means of subcutaneous injections. Of twelve cases of pleuritis subjected to this procedure, in seven salicylic acid was recovered from the exudate and in five no traces whatever of it were found. Cryoscopic examination of the pleuritic fluid and of the blood serum in these cases showed that the freezing-point was alike in each when the permeability (from without inward) was lost, but slightly different when it was preserved. In comparing these results with clinical facts, the conclusions drawn are that when the permeability is preserved the pleurisy is in the course of invasion and solution; when it is absent the inflammation is established. The practical application is that before doing thoracentesis one should wait until the moment when the subcutaneous injection of the sodium salicylate no longer affects the pleural cavity contents.

HIRTZ, at the meeting of July 13, 1900, reported the autopsy findings of a case of hemorrhagic intestinal necrosis due to venous obliteration. The patient was a female, thirty-one years old, afflicted with abundant ascites accompanied by the appearance of collateral circulation, and three days after admission by the sudden onset of violent vomiting and general abdominal pain, and followed by coma and death about thirty-six hours later. At the post-mortem examination were found an old adhesive obliterating portal phlebitis, discoloration of fifty centimeters of the small intestines due to a reddish bloody fluid exudate into their lumen, thickening of the coats of the mesentery and obliteration of the mesenteric veins. A comparison of these and the clinical facts of this with those of other similar cases published seem to indicate the possibility of diagnosticating this condition during life. Its theoretical clinical picture would be as follows: Pain would be an early and important sign; never absent, more or less severe; awakened and aggravated by palpation, or spontaneous and acute, radiating or situate in the renal lumbar, epigastric, or hypochondriac regions, if in the course of a hepatic disease, overshadowing the symptoms of the same; simulating appendicitis, renal, biliary and intestinal colic, intestinal obstruction, etc., and often diagnosticated solely by exploratory incision. In all cases of primary venous obstruction the patients have died in what may be called the *terminal syndrome*. After several weeks of indefinite abdominal distress there comes a violent sudden onset of intense general, at times tearing pain, vomiting, anxious expression and prostration, resembling somewhat a peritonitis. But the lesions are not those of a peritonitis. In fact, bacteriologically the intestinal contents are crowded with germs, fewer and fewer in the coats as we pass outward, and finally the exudate in the general peritoneal cavity has been found germ-free.

MENETRIER reported two cases of primary pneumococcus peritonitis in the adult. This disease occurs oftener in children than in adults. His first case seen eight years ago is of interest only from a bacteriological standpoint. A male, thirty years old, suddenly by night was seized with abdominal pain, dying after eight days' agony. Pure cultures of the pneumococcus were obtained from the fluid exudate of the peritoneum, but no focus of their invasion was obtained. The other patient showed many interesting clinical features. A male, thirty-five years old; same onset; later development of peritonitis, followed by subsidence; then pain and

abscess-formation on the sole of the right foot; serosanguinous evacuation; loss of dorsalis pedis pulse; similar abscess in the left hand; decrease in the left radial pulse; recrudescence of the peritonitis; death. The autopsy revelations were: General peritonitis, infarcts of the spleen and kidneys, obliteration of the left radial and right dorsalis pedis, posterior tibial and popliteal arteries by old and of the Sylvian artery by recent clot; all yielded the pneumococcus; normal heart; the peritonitic exudate contained the same germ, but as the post-mortem examination was performed late the bacillus coli communis and the staphylococcus albus were mixed with it. The patient had had a cough fifteen days before these symptoms began.

M. G. BROUARDAL, at the meeting of July 20th, explained experiments and their results conducted by THOINOT and himself as to the effect of certain visceral substances upon poisons. The method followed was to triturate a known weight of a given viscus with a definite quantity of the poison and inject the mixture into guinea-pigs. The poisons employed were strychnine sulphate, chlorhydrate of morphine, arsenious acid and sulphate of atropine. The results of the experiments are that the organs may neutralize, enhance or not affect the specific action of the drugs. The kidney and the liver appear to be especially active in neutralizing the toxic effects. Muscle tissue renders inert a rather large dose of strychnine, has little effect on morphine and atropine and augments arsenic. Cardiac substance is neutral as to atropine, but increases the virulence of strychnine, morphine and arsenic in descending scale. Lung tissue has no effect on arsenic and feebly combats all the others. Cerebral matter is neutral as to atropine, strongly antagonizes strychnine and morphine, but augments arsenic greatly. Without drawing definite conclusions from these illustrations, they may profitably be compared with those by Teissier (Lyons) along the same lines with toxins.

ANTONY reported a case of partial recovery from aphasia of eleven years' standing. The patient, a man, thirty-five years of age, had suddenly been stricken with right hemiplegia. Four days afterward consciousness returned, but he was totally unable to answer questions except in a few meaningless monosyllables no matter what the query might be. There was no word-blindness and no word-deafness. The case appeared to be one of cortica motor aphasia with conservation of sung words due very probably to the destruction of the top of the third left frontal convolution. The state of this man had not changed at all till June last, when by some unexplained way he regained certain words.

Water Famine in the Bronx.—The recent dry weather has brought about a dearth of water for the Bronx region. It is feared that typhoid may break out as the water is of the poorest quality. The Commissioner is seeking some relief.

SOCIETY PROCEEDINGS.

CANADIAN MEDICAL ASSOCIATION.

Thirty-Third Annual Meeting, Held at Ottawa, September 12-14, 1900.

THE thirty-third annual meeting of this Association was held in the Academic Hall of the University of Ottawa, Ottawa, Canada, under the presidency of Dr. R. H. Powell.

Eliminative and Aseptic Treatment of Typhoid Fever.—Dr. W. B. Thistle of Toronto University in contributing this paper stated that it is now seven years since he introduced this plan of treatment of typhoid fever to the profession. Dr. Thistle claimed that this form of treatment had been misrepresented by Professor Osler and others, as he had never held the opinion that the eliminative and antiseptic plan could rid such organs as the liver and spleen of the bacilli lodged in them. When once the typhoid germ gains access to the alimentary tract, its multiplication occurs with extreme rapidity and the intestinal contents teem with countless numbers of them. These are not confined to the intestine, but are to be found in almost every organ of the body. He is of the opinion that the draining of the intestinal walls, following upon the action of a purgative such as calomel and magnesium sulphate, would tend to get rid of some of these bacilli in the intestinal walls, but would not effect their exit from the liver, etc. In many instances he thought the treatment had been imperfectly applied without a clear conception of the underlying principle. Under this plan Dr. Thistle has never had a fatal case of hemorrhage, whatever hemorrhage occurred having been always very slight. He has also had few perforations. Twenty per cent. of the death-rate is from perforation and hemorrhage. In Toronto this plan of treatment is universally adopted. Statistics at the Toronto General Hospital show that from 1893 until the present time there have been 833 cases in that institution with 56 deaths —a mortality of 6½ per cent. under this plan of treatment.

In discussing the paper, Dr. McPhedran of Toronto stated that he had watched Dr. Thistle's work from the time of the appearance of his first paper on the subject, but could not agree with all his conclusions. He did not think that it lessened diarrhea, tympanites, fever or delirium. He considered that Dr. Thistle was harboring the idea that purgatives in typhoid was a new discovery with him; this was not so. Twenty-five years ago he gave these for the first ten days at least. In addition to this he used to give carbolic acid and iodine, and in a certain class of cases he thought he had used the exact treatment. Another class would then come along, in which that treatment had no effect whatever. He considered that the general toxemia that existed could not be eliminated through the bowel. It

had to be done through the kidneys and skin. In reply Dr. Thistle emphasized the fact that he was not trying to eliminate bacilli and toxins from the glands, but that in clearing out the bowels he was trying to eliminate toxins and not bacilli from the body.

Sarcoma of the Right Nasal Fossa.—This paper was presented by Dr. Perry G. Goldsmith of Belleville, Ont. The patient was a man, thirty-eight years of age, a farmer, with an unimportant family and personal history. He consulted the doctor on August 4th in regard to severe frontal headache. Growths and some bone was removed from the nose. After this the swelling and pain in the eye rapidly increased, so that it was seen to project far forward, downward and outward. The growths in the nasal fossa were curetted and sent to Professor Anderson of the Trinity Medical College Pathological Laboratory, who pronounced them of sarcomatous nature, of small round-celled variety, with the walls of the blood-vessels thin and poorly developed. The discharge from the nostril was of an odor similar to that emanating from cancer of the uterus. Up to ten years ago Bosworth had collected forty of these cases. Dr. R. A. Reeve, Toronto, stated that a number of years ago he had presented before the Association a paper on the same subject. He directed attention to the importance of examining the naso-pharynx in diseases of the orbit. He cited a case similar to Dr. Goldsmith's. In his case there was little pain, but an examination of the nose revealed the tumor.

President's Address.—The hall was well filled on the afternoon of the second day when the president, Dr. R. W. Powell, arose to deliver the annual presidential address. He recited a few reminiscences when on former occasions the Canadian Medical Association had met in the Capital City in 1871, 1881, 1889, and 1893. Reference was made to the South African war in order to show the unsatisfactory condition of affairs which permitted other colonial surgeons to practise their profession in that land without hindrance, whilst Canadians were debarred from the same privilege. An earnest and united effort on the part of the profession throughout the entire Dominion of Canada in an endeavor to bring about interprovincial registration would facilitate matters in the direction of securing these privileges for Canadian professions in other parts of the British Empire. The hackneyed subject of tuberculosis was lightly touched on; whilst a very important matter relating to the profession, that of a medical defence association, was dealt with at considerable length. Dr. Powell favored the formation of such association, and later on in the proceedings nominated a committee to look into the question and report on the advisability and practicability of forming a Dominion association of this character.

Experiences in the South African War.—Dr. G. S. Ryerson addressed the gathering on the above subject. He dealt first upon the experience gained with the modern bullets. The very latest returns show that 936 officers and 11,701 non-commissioned officers and men had been wounded, of whom only 732 have died of wounds received in action, which is ascribed to the septic character of the bullet and the prompt attention and antiseptic treatment. Dr. Ryerson then described the nature of the wounds received. Referring to the reported use of poisoned bullets, this was not the truth, as the tarnish or verdigris probably accumulated in transit through the barrel. He also doubted the fact of explosive bullets being used. The Boers made use of thousands of the Martini-Henry, a heavy bullet, which caused great destruction of soft parts necessitating amputation. There were few amputations in this war. Kendal Franks performed but 20 amputations in 2000 cases. Whilst abdominal section in wounds of the abdomen was mainly inadvisable, he saw one case where the results were excellent. He spoke highly of the magnificent work of the Royal Army Medical Corps. Dr. Roddick spoke of the sacrifices of Dr. Ryerson in proceeding to South Africa at his own expense to carry out the work of the Red Cross Association. While in England recently he made it his special business to enquire of returning Canadian soldiers as to the hospital management in South Africa, and although he had spoken to many of these, he had failed completely to find a single Canadian who had anything but praise for the hospital arrangements in that country.

Our Race and Consumption.—Sir James Grant, Ottawa, considered it an important fact and one worthy of consideration that races had been born on this continent, lived and entirely disappeared, leaving mounds in the West and other traces in Florida and elsewhere of their undoubted existence. Thus far there is no information as to the exact cause of the disappearance of these races. It remains for the Anglo-Saxons to see whether they will prove more successful than their predecessors in establishing themselves on this continent. He referred to the loss of 3000 lives in the fair province of Ontario in 1898 by consumption alone, and deplored the fact that the people were not as yet alive to their danger. Sir James endorsed the legislation at the last session of the provincial parliament designed for the purpose of assisting municipalities in the erection and maintenance of sanitoria for consumptives.

Tabes Dorsalis.—Owing to the unavoidable absence of Dr. Allen McLane Hamilton, New York, through illness, the President read this paper. Looking back over a number of years, the writer finds that most good has been done where little or no medicine has been given. He has found rest by suspension and persistent cauterization of the back good treatment. Syphilis cannot be traced in more than fifty per cent. of the cases.

The Physician's "Vaster Empire."—The subject matter of this paper read by Dr. John Hunter, Toronto, dealt with the questions of sanitary science, education, social purity and medical mis-

sions. As regards sanitary science the purport of the paper was a plea for the broader and freer attainment of principles of sanitary science and their application in the building and constructions of our homes, schools, churches, etc. No dwelling-house should be constructed except under the supervision of an architect and a physician versed in sanitary science. In the matter of sanitary science, architects had improved wonderfully in the past ten years. Another important question was that of our educational system —the mental and physical health and development of school children. The best way to secure physical vigor and high mentality was surely within the province of the physician to grapple with and study. In all forms of social purity and impurity, physicians should speak *ex cathedra* against every form of vice and immorality. The boys and the girls of the family should be enlightened, by the fathers and mothers respectively, as to their sexual proclivities at proper periods. In medical missions, he referred to the vast field for medical missionary work in foreign countries.

Tuberculous Lesions.—At the evening session of the first day, before a crowded assembly hall, Mr. Edmund Owen, London, delivered the "Address in Surgery." At the very outset he stated that his remarks would deal with tuberculous lesions as the surgeon meets them day by day in the hospital ward, in private practice and in the operating-theater. Discussing the origin of the word clinical, *cline*, a couch or bier—and if a bier, why not a mortuary table, he referred to the pathologist, saying he considered his (the pathologist's) thought to be only of the dead tissue. The surgeon sees the human tree during its life but rarely follows it after death. The student does clinical and pathological work at different times and he is enabled to follow the case straight from the ward to the laboratory. Study of the fresh specimen is best; for the specimen taken from formalin is no more like the condition than canned salmon is like fresh-run fish. He would not hinder experimental research work; it is absolutely essential. The life of a man is of more value than a sparrow or many guinea-pigs. It would be almost impossible to overestimate the direct value of experimental laboratory work. Strumous and scrofulous are terms devoid of meaning and we now call tubercle by its proper name. There are three great factors in connection with tuberculosis which the public must be made acquainted with, *viz.*, (1) the disease is communicable, but they must be allowed a little time before they accept this statement and fact; (2) the disease is preventable; this follows almost as a corollary to the first statement; (3) the disease is curable.

Excision of the Knee Joint.—Dr. A. Primrose, Toronto, described Kocher's method of dealing with tuberculous knee-joint and recited the histories of a few cases in which he had obtained excellent results. The operation was made clear by blackboard illustration. At the conclusion of the demonstration Dr. Primrose was highly complimented by Mr. Owen.

Recent Pathologic Studies of the Blood.—Dr. L. H. Warner, Brooklyn, contributed a paper on this subject. He premised his statements by asserting that there was a necessity for experiments for the progress of pathology. His experimental researches were directed along three lines of enquiry, *viz.*, experiments, observation and individual observation at clinics in hospitals. The examination of the blood in most cases is of more importance than the examination of the urine. Dr. Warner gave the formula of a new staining solution which he had found very practicable. The blood specimen should be prepared in the usual manner. The slides are heated in a hot oven to 98° F., immersed for one minute in a one-per-cent. aqueous solution of methylene blue, washed in water, then in one-per-cent. alcoholic solution of eosin, washed again with water, and then in a one-per-cent. solution of Bismarck brown.

The Treatment of Hernia.—Dr. F. J. Shepherd, Montreal, said it is now some twenty years since surgeons began to do these operations by the open method. The methods of operation are almost as numerous as surgeons, but there are certain general principles underlying all operations: (1) The necessity for excision or obliteration of the sac; (2) closure of canal; and (3) union by first intention. Some also hold that alteration in the direction of the canal is necessary. Bassini's is the operation performed by Dr. Shepherd, although not always successful. Absorbable sutures are the best and if antiseptic they are to be preferred. A suture that will last for three weeks is all that is wanted. He has now used chromicized catgut for some time. He never washes out the wound and thinks it better to dissect out the sac with the knife than to tear it with the fingers. He never uses a drain. For the last two years he has used rubber gloves in all his surgical work on the abdomen and he considers his results have been better since he used them. In these operations the mortality is practically *nil*. Operations on children are now our most successful cases. Formerly they were not advised except when strangulation existed. In discussing this paper and the cases recited, Dr. Lapthorn Smith stated that his experience lay mostly in ventral and umbilical hernias, some of them being so large as to require twenty stitches. During the past two years he has abandoned silk and resorted to catgut, chromicized, which he always prepares himself.

Dr. Shepherd in reply said if there is a little oozing in the wound, he introduces between the edges of the wound a probe and lets out the accumulated serum, and he finds that this is quite efficacious, as by this method the chance of any germs entering is minimized.

Syphilitic Gummata of the Spinal Cord.—This case, reported by Dr. F. W. Campbell of Montreal, was a very interesting one. The patient was a highly neurotic individual and some time

before had suffered from insomnia of an aggravated character. Retention of urine and loss of power in the lower limbs were noted. The patellar reflex was about normal. The loss of power in the lower limbs was absolute. The pulse varied from 80 to 96; the temperature never rose above 99° F. The stomach remained in fairly good condition all the time. A consultant from New York was brought on and a diagnosis was established of tumor which might be sarcomatous or syphilitic, of the spinal cord situated about the first lumbar vertebra. The advice of the consultant was to give 500 grains of iodide of potash per day, at first commencing with one dram three times a day. Dr. Campbell recited the daily history of the patient while getting under the large dose and its gradual withdrawal. The patient is alive to-day and in good health, having recovered complete control of his lower extremities.

Address in Gynecology.—Dr. Wm. Gardner of Montreal delivered a very practical address upon the mistakes in diagnosis and treatment in midwifery and gynecology. We often learn more from our mistakes than from our successes. Correct and accurate diagnosis depends mainly upon a sense of touch which is only to be attained by long and patient practice. The advantages of examining on a firm table instead of on a couch or bed were emphasized. The patient's rectum should always have been emptied before presenting for examination. It is best to empty the bladder by catheter when the patient is in position, as it is in this way that you will notice any discharges, etc., and an uncontaminated specimen for examination is thus obtained. Where tension is present in the muscles of the abdomen, if you make a series of circular movements over the lower abdomen, gradually narrowing your circle, you will be able to overcome whatever rigidity may be present. In physical examination Professor Gardner urged caution in the use of the sound. In pelvic examinations he has made it a point to examine the position of the kidneys as well. In the diagnosis of pregnancy mistakes are often made. The patients are few in whom the diagnosis cannot be made by careful examination of history, signs, etc. Many women are probably inaccurate as to date. Dr. Gardner illustrated all his points by reciting cases to the point. He instanced one in particular where he once found a woman in his office on her hands and knees in the throes of a twin labor, a fellow practitioner having failed to recognize the pregnancy had tapped the gravid uterus and drawn off a considerable quantity of liquor amnii. The paper closed with an interesting account of mistakes in extra-uterine pregnancy.

Abdominal and Pelvic Disturbances in Women.—Dr. Clarence Webster of Chicago in this paper spoke of symptomatology in women often overlooked by the general practitioner. He then took up the normal relationship of the abdominal and pelvic contents and proceeded to account for intra-abdominal pressure, the pelvic organs being to a great extent maintained in their respective positions by reason of the pressure of the abdominal and pelvic walls. The average specific gravity of the viscera was very little more than that of water; that of the liver was 1.5. There is no proof that the mesenteries act as constant supports or were ever meant to be such; and the main factor in sustaining the viscera is the strength of the abdominal wall and pelvic floor. Local weakness of the abdominal wall has been fairly well described under hernia while general weakness of the abdominal wall has been described as pendulous belly; and general weakness is an exceedingly rare condition. As to the question of etiology, the condition is found in women who have borne children; on examination of the great majority of women, there is some degree of separation of the recti muscles in the region of the navel. All evidence later on may disappear but permanent widening remains. The results of all this is unavoidable enteroptosis; and it is generally to be found in women who have worn corsets. A common displacement is that of the right kidney. Dr. Webster dwelt upon the diagnostic symptoms of these conditions and then proceeded to describe the operation he performs for their relief. This consists in bringing the edges of the two recti into apposition. He first performed an operation for the relief of the condition in November, 1898, and since that time 41 cases have been operated on and the results have been most satisfactory.

Address in Medicine.—The advance in knowledge, said Prof. Frederick C. Shattuck of Boston, in his opening remarks, has brought about our relation to things. There is noticed a subdivision of labor in every branch of industry. Specialization has taken place in the science and art of medicine. In specialization lies the cleavage between medicine and surgery; and nowhere has the line been more closely drawn than in England. Anesthesia greatly enlarged the bounds of surgery. Twenty-five years ago there was not a pure surgeon in America. Belly-ache is now a surgical disease. The heart is practically the only viscus which remains the exclusive organ of the physician. In this country the general practitioner is clinging to obstetrics for family practice. In some of the larger centers there is a tendency to the specialist in obstetrics, who will preside at the accouchement and the family physician then step in as attendant throughout the puerperium. Pure gynecology scarcely exists today; and pelvic tinkering is suffering a rapid decline. The great bulk of major gynecology belongs to abdominal surgery which in turn belongs to the general surgeon. Gynecologists should study general surgery and become general surgeons first. The field in medicine is so large that no man can grasp it all in a lifetime. Professor Shattuck referred to specialism in neurology and dermatology. Nose and throat should comprise one specialty. Desire on the part of some to escape the hurly-burly of general practice may be a cause in throwing them into

specialism; and then special knowledge draws larger fees. Ophthalmologists get more for removing a speck of dust from the eye than the general practitioner. When we have specialists for the diseases of young life, why not also have a specialty for the disease of old age. Professor Shattuck closed his able address by affirming that specialism in medicine had come to stay.

Gastric Hemorrhage.—Dr. George E. Armstrong of Montreal, in reading this paper, stated there was a fairly well-determined field in which surgical interference may be of use in hemorrhage of the stomach. Hemorrhage occurs in fifty per cent. of gastric ulcers and is fatal in eight per cent. These cases are arranged in two groups, the acute and the chronic. Rodman has reported 31 operations for frequently recurring or chronic hemorrhages with 6 deaths. Dr. Armstrong has operated five times for gastric hemorrhage, one being a chronic case. In one of these cases the patient was getting along nicely after the operation, when the patient expired suddenly and on post-mortem examination thrombi were found in the branches of the pulmonary artery.

Uterine Retroversion and Prolapse.—Dr. A. Lapthorn Smith of Montreal referred to the proper and most successful management of procidentia uteri in elderly women between seventy and seventy-five years of age. The majority of these patients have an ulcerated cervix. After confinement the uterus remained enlarged and the pernicious habit of keeping women too long on their backs has a tendency to produce backward displacement. Dr. Smith feels certain that women who have been cured of this distressing condition will have little difficulty in persuading others to avail themselves of the treatment. In correcting this deformity, Dr. Smith makes a small incision in the abdomen and performs ventrofixation. After that the vaginal canal is narrowed by a large anterior and posterior colporrhaphy. In selected cases he also amputates the lower half of the organ and stitches the vagina to the upper half. He considers ventrofixation, if properly performed, a most reliable means of fastening up the uterus. The operation has given him the most complete satisfaction of any he has ever performed, especially when combined with amputation of the cervix and posterior colporrhapy.

Gasoline as a Surgical Detergent.—Dr. Bruce, Toronto, contributed something highly original, that is, the use of gasoline for cleansing dirty, greasy hands and for preparing the field of operation before surgical procedures. It is much better than soap and water and brushes; and he now constantly carries a small bottle of the substance in his surgical bag. A report from Dr. Wm. Goldie, Toronto, showed its effects upon germs and germ life. A word of caution is to be borne in mind: as it is a highly inflammable substance, it should not be used in any quantity near an exposed light; moreover, it is painful when applied to the eyes or ears. It is useful in cleansing sutures of accumulated blood and dressing powder, as it enables one to locate the stitches better. Dr. J. C. Mitchell, Enniskillen, Ont., stated that he had tried gasoline recently as a detergent in two very severe threshing-machine accidents, where the parts were covered with oil and grease and dirt, it was very satisfactory, as he was able to get perfect cleanliness and both wounds healed by first intention.

Dilatation and Prolapse of the Stomach.—A paper with the above title, contributed by Professor McPhedran of Toronto, dealt principally with prolapse. This condition rarely occurs alone, but is associated with prolapse of other abdominal organs. There is generally present, as well, some degree of dilatation; the abdomen may be prominent or flat or even retracted. He related the case of a man, aged 51 years, a manufacturer, who had been ailing for two or three years. The stomach was below the umbilicus. He was directed to massage the abdomen very thoroughly and to practise abdominal gymnastics. Through this treatment combined with dietetics, he has been restored to health and is able to resume business. Another case of a woman, aged thirty-five years, who had been the subject of recurrent attacks of vomiting for two years. The symptoms were detailed; massage and abdominal gymnastics ordered with satisfactory results. The different ways of examining the stomach were described; and in concluding Dr. McPhedran spoke of the benefits of a change of scene in treating these cases.

Physical Training.—Dr. B. E. McKenzie, Toronto, gave a very interesting account of the methods employed by him in correcting deformities in his orthopedic hospital in the city of Toronto. The paper was illustrated by lithographs showing improvements in spinal deformities and other abnormalities. The paper embraced the results of his observations for thirteen years past, and was ample justification of the benefits derived from gymnastics in the correction of lateral curvature, clubfeet, etc. He had found physical training also especially valuable in hysteria and chorea.

Inter-Provincial Registration.—Dr. T. G. Roddick, Montreal, read the report of the Committee having this matter in hand. A new feature was that allowing of representation on the proposed Dominion Council of homeopaths, as, according to the law of Ontario, these had their vested rights and so must have similar interest in any Dominion Council. The homeopaths, then, will be allowed three representatives, which will be equivalent to the representation from any one province of the Dominion. Their term of office will be four years. This will not, however, be inserted in the bill as such, but will appear under "any other school of medicine having legal recognition throughout Canada," as the British Medical Council would not recognize any such body. Dr. Roddick stated that the bill would be introduced at the next session of parliament; and that the respective members of the Committee must bestir themselves before their respective provin-

cial parliaments, as these must sanction the measure before it could be finally acted upon by the Dominion parliament.

Cerebral Abscess.—Dr. James Stewart, Montreal, reported two interesting cases of abscess of the brain situated in the tempero-sphenoidal lobe, and referred to the usual existing aphasia which was present in both of these cases, *viz.*, simple ability to name objects. The first case occurred in a young man, twenty-two years of age, who had otitis media following an attack of influenza. Some six weeks afterward an abscess formed. The abscess was diagnosed as confined to this area simply on account of the peculiar aphasia, the simple inability to give the name of a pen when that object was presented to him. The patient was operated on by Professor Bell who secured two ounces of pus. Meningitis, however, set in and the patient succumbed. The second case was a girl twenty-one years of age. She had had ear trouble for a great many years with very severe pain at times. She, too, had difficulty in naming objects and finally she could not name any object whatever. She died suddenly a few hours before the operation was to be performed. On post-mortem two abscesses were found, one skirting the upper border of the lobe and the other about the center of its substance. In reply to a question of the President Dr. Stewart stated there is what is called the naming center and when this is destroyed that particular form of speech defect is present. The cases were aptly illustrated by a diagram.

Gangrene of the Leg Following Typhoid Fever.—Dr. H. H. Chown, Winnipeg, reported two cases of gangrene following an attack of typhoid fever which had recently come under his observation. In the first case the patient had the classical symptoms of typhoid, the spots appearing at the end of the first week and being very numerous. Great pain set in in the calf of the leg, with collapse, while the limb was cold and bloodless. Cutaneous sensibility was lost over the leg. The third day after the complication set in, the part involved included the lower third of the leg on the inner and lower half on the outer side. Operation was performed at the upper and middle third of femur. Patient stood the operation well. The temperature before the operation was 102.6° F., pulse, 120; on the following day the temperature was normal and the pulse 110. On the tenth day the flaps were united. There was a rise of temperature a few days later—a relapse, with hypostatic congestion of the lungs. On the fifth day hemorrhage of the bowels. The patient is now a picture of health, weighing 200 pounds. The second was a somewhat similar case in which the blood reacted early and promptly to the Widal test. The gangrene began in the first case on the eleventh day of the disease; in the second on the ninth. Keen reports gangrene on the fourteenth day. The gangrene in the second case extended to the upper and middle third of the leg. The leg was amputated and prompt union took place throughout. In discussing the cases, Dr. R. B. Nevitt, Toronto, mentioned a similar case coming under his observation during the past summer. Here gangrene occurred about the third week of the fever, and the patient was seen about a week or ten days afterward. Amputation was performed through the middle third of the femur. He also referred to a case of gangrene of the arm following an attack of pneumonia recently observed by him.

Notes on Atropine—Dr. R. D. Rudolf, Toronto, read an interesting paper with the above title, illustrating by means of a chart the action of the drug on animals and inferences drawn therefrom of its therapeutic uses. He finds that the drug directly stimulates the heart, and thus the blood-pressure is markedly raised. He considers that the maximum single dose of 1/20 of a grain, as laid down by Witherstine, is too large unless used as an antidote; and one ought never to give more than 1/100th of atropine sulphate at one time except in emergencies. He also referred to its action in catarrhal pneumonias of children and its employment before anesthesia to ward off danger. Dr. A. D. Blackader, Montreal, discussed the paper and congratulated Dr. Rudolf upon it and hoped that he would pursue his studies further upon the same subject to find out the effect the drug would produce in controlling vomiting after anesthesia. He considers, however, that strychnine and not atropine is the most powerful heart tonic we possess. He thought that late experiments would throw doubt upon atropine being a direct stimulant to the heart muscle; and he thought it questionable to administer a drug that will paralyze nerve-endings when we want to stimulate the heart's action.

Lantern Slide Demonstration of Skin Diseases.—Dr. George H. Fox, New York, conducted this demonstration which the members of the Association appreciated most highly. The great majority of the skin lesions shown were of syphilitic origin, and as they appeared on the canvas Dr. Fox described the histories of the cases. One in particular attracted attention from the disfigurement of the nose and face—a huge mass of excrescences, which Dr. Fox was able to get rid of in the course of two or three months, leaving only a slight superficial scar. He laid down a timely word of caution in treating these conditions, that when the patient was run down and emaciated through large doses of mercury or iodide of potash, not to keep on pushing these drugs, but to desist for a period and endeavor to build up the patient's general condition, and then return to the specific treatment and the results would be found to be more material. At the conclusion of the demonstration, which will rank as one of the features of the meeting, Dr. Fox was accorded a hearty vote of thanks by the Association.

Nerve Suture.—Dr. F. J. Shepherd showed an interesting case, a boy of sixteen, who at the age of six sustained a severe cutting of the nerves

of the brachial plexus below the cords of the brachial plexus. At that time, ten years ago, Dr. Shepherd dissected out each nerve and united their respective ends by suture. All did well with the exception of the musculo-spiral, and as a consequence the lad has very little control over the extensors of the forearm.

Systemic Treatment of Disease of the Eyes.—Dr. George H. Burnham's method of treating syphilitic and other diseases of the eye is to combine the hypodermatic use of pilocarpine with the administration of the usual remedies. Under this method no such result follows in other plans of treatment, and with this a permanent curative result is got. The treatment has a wide application. Whether iodide of potash and mercury or the iodide alone is given internally in suitable cases without satisfactory results, if the pilocarpine be added, good results will follow.

Mental Sanitation.—Dr. R. W. Bruce Smith, physician to the Brockville Asylum for the Insane, contributed a scientific paper with the above title. It was a plea for prophylaxis in insanity, and he thought that much would be accomplished in this direction in the twentieth century. He stated that insanity is on the increase in Canada and thinks it can be duly ascribed to the fact that there have been no preventive measures employed. In order to accomplish good in this direction we must seek either to lessen the demands on or to strengthen the resisting power of the brain. He condemned intermarriages in families and also amongst those of a deranged mentality; and as fifty per cent. of the cases of insanity are heredity, the descendants of these should be careful in contracting marriage-ties. He referred to a portion of one county in Ontario alone where indiscriminate marriage and intermarriage have become most fruitful of insanity; and he has seen several members of one family from that locality inmates of the same institution at the same time. He considers that the day may yet dawn when we will give the same attention to the rearing of children as we now give to the breeding of horses. Speaking of farm-life and the tendency it has to melancholy, he thought this class of the community should receive education in participating more in the enjoyments of life and not continue to rot in domesticity. An upheaval in the sentiment and surroundings of the rural homes would work wonders in prophylaxis principles.

Election of Officers.—The following officers were elected: President, H. H. Chown, Winnipeg; Treasurer, H. B. Small, Ottawa; General Secretary, F. N. G. Starr, Toronto.

Winnipeg was chosen as the next place of meeting.

Eczema of the Scalp of Infants.

℞ Acidi Salicylici..... 1.0
Zinci Oxidi..... 5.0
Lanolini ..... 30.0.
M. Ft. Unguenti. Sig. For external use.

REVIEWS.

Surgical Pathology and Therapeutics. By JOHN COLLINS WARREN, M.D., LL.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Illustrated. Second edition with an appendix containing an enumeration of the scientific aids to surgical diagnosis, together with a series of sections on regional bacteriology. Philadelphia: W. B. Saunders, 1900.

THE appearance of a second edition of this justly popular work is to be noted with pleasure. Though the field of pathology is well occupied by such an endless array of text-books and manuals that to stand in the front rank requires more than ordinary merit, it is not going too far to claim for the present volume a place among the foremost. Features perhaps that have contributed to its popularity are the judicious combination of therapeutics and morbid anatomy and the incorporation of the line of treatment to be pursued with the description of each pathological entity. Coming from so distinguished an authority these discussions are of the greatest value and contain much that is interesting and suggestive to the specialist as well as to the student or general practitioner.

In this edition the author has embodied the important changes in an appendix which replaces the old one and the chapter on antiseptic surgery. Under the heading of "Scientific Aids to Surgical Diagnosis" he enumerates the more recent methods which may serve as short cuts to diagnosis and gives in addition a series of articles on what may be termed regional bacteriology. The various vegetable parasites liable to be found in different portions of the body, such as the peritoneum, the genito-urinary tract, the mouth, etc., are described, their characteristics noted and suitable methods for their recognition, identification and extermination indicated.

The illustrations, so essential a factor in the value of a book dealing with this branch, leave little to be desired and in many instances offer striking evidence of the recent advances in color printing, although the author, especially in the sections on tumors, has not always resisted the temptation to portray exaggerated and bizarre cases rather than what is typical of everyday practice.

Mikroskopie und Chemie am Krankenbett. Für Studirende und Aerzte. Bearbeitet von Dr. HERMANN LENHARTZ, Professor der Medicin und Krankenhaus-Direktor in Hamburg. Dritte wesentlich umgearbeitete Auflage. Berlin: Julius Springer, 1900.

IN this little volume the whole subject of clinical microscopy and chemistry is adequately yet succinctly discussed. After an introductory chapter on the manipulation of the microscope the

first section is devoted to the consideration of the animal and vegetable parasites occurring in the body in health and disease. Nearly twice as much space is given to the latter as to the fomer, the general principles of bacteriological technic being first briefly described, special methods of staining and culture receiving treatment *in extenso* under the headings of the various specific micro-organisms. This is followed by a section on the blood which sufficiently covers the field of pathology and diagnosis, and by another on the examination of the expectoration which is most praiseworthy in its thoroughness. In Part IV. the investigation of the secretions of the mouth, stomach-contents and feces is described while by far the largest portion of the book, comprising nearly one hundred pages, is given up to the subject of urinalysis. The sixth and last section embraces the microscopy and chemistry of exudates, transudates and the contents of cysts of various descriptions.

In point of conciseness and clearness nothing is left to be desired, while a sufficient variety of methods and formulæ is given to make the book a useful and complete laboratory guide. In this, the third, edition, the text has been fully revised and numerous additional illustrations have been interpolated.

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by DRS. G. E. DE SCHWEINITZ, EDWARD MARTIN and BARTON C. HIRST. New (8th) edition. Philadelphia and New York: Lea Brothers & Co., 1900.

THE appearance of eight editions of a book within nine years means merit of more than an ordinary order and the fact that the present volume has reached this distinction is a sufficient index of its value and the general appreciation it has met. In the present edition no change has been made in the arrangement of the subject matter which is still divided into two main parts, drugs and diseases. In the former there is presented for each remedial agent of accepted utility an adequate and essentially up-to-date *résumé of* its physiological action and therapeutics, the author condensing into a few paragraphs the conclusions of all the observers whose work has bearing on the subject and giving the facts in a nutshell. The section on diseases is no less valuable and at a glance one may run over the different methods of treatment available for any particular affection and select the most appropriate. The value of the work for quick reference is greatly enhanced by the very complete system of cross-indexing. In its new form the text has undergone revision and been made to conform not only to the United States Pharmacopœia, as it has done, but also to the British Pharmacopœia of June, 1898. Some articles on new drugs have been added and also several illustrations; the most notable picture in the book is a full-page colored plate depicting in glowing colors five roosters' heads and intended to illustrate the action of ergot, which, however interesting it may be from a poultry fancier's point of view, or as a monument of modern lithographic skill, seems a trifle out of keeping with the very practical tone of the book in general.

Fractures and Dislocations of the Upper Extremity. By T. E. PLATT, M.D., F.R.C.S. London: H. K. Lewis, 1899.

To quote the author's own words in the preface, this book is "almost entirely a reprint of a series of papers contributed to the *Medical Chronicle*, 1898." The work certainly gives evidence of painstaking records, a wide familiarity with literature, and the data from its statistics bear out all that has been maintained in special works on the subject, but nothing beyond this. A liberal reference and a free criticism of the methods of treatment, and of the mechanism of fractures is current throughout these pages, yet there is nothing of an experimental nature or practical application to substantiate the ground taken, only the tried and trusted having been applied. The one novel feature are the skiagrams, but poorly reproduced, and they in some few instances illustrate what the author maintains, that for personal inspection skiascopy is more satisfactory as it offers a kaleidoscopic view, whereas for illustration, several skiagrams from different points of view are necessary and these must be contrasted with skiagrams of the sound members.

This style of book can only appeal to those specially interested in this class of injuries.

Fractures. With an Appendix on the Practical use of the Röntgen Rays. By CARL BECK, M.D., Visiting Surgeon to St. Mark's Hospital and to the New York German Poliklinik; Formerly Professor of Surgery, New York School of Clinical Medicine; Consulting Surgeon to Sheltering Guardian Society Orphan Asylum, etc. Philadelphia: W. B. Saunders & Co., 1900.

THE dedication of this book is a light upon its tenor and spirit, "To Wilhelm Conrad Röntgen, Without Whose Discovery Much of This Book Could Not Have Been Written", that is to say, it aims very directly to show the value, application, errors and deficiencies of the X-ray.

The other features of the book are of a high order and reliable in their doctrine. The appendix on the practical use of the Röntgen rays contains much information of great value born of close reading, careful experimenting and judicious interpretation. The book is well worthy of a place among the surgical works of our libraries.